Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Product Specification

CONTENTS

Number	ITEM	Page
	COVER	0
	CONTENTS	1
	RECORD OF REVISIONS	2
1	GENERAL DESCRIPTION	3
2	ABSOLUTE MAXIMUM RATINGS	4
3	ELECTRICAL SPECIFICATIONS	5
3-1	ELECTRICAL CHARACTERISTICS	5
3-2	INTERFACE CONNECTIONS	7
3-3	SIGNAL TIMING SPECIFICATIONS	9
3-4	LVDS SIGNAL SPECIFICATIONS	10
3-5	COLOR DATA REFERENCE	13
3-6	POWER SEQUENCE	14
4	OPTICAL SPECIFICATIONS	15
5	MECHANICAL CHARACTERISTICS	21
6	RELIABILITY	24
7	INTERNATIONAL STANDARDS	25
7-1	SAFETY	25
7-2	EMC	25
7-3	Environment	25
8	PACKING	26
8-1	INFORMATION OF LCM LABEL	26
8-2	PACKING FORM	26
9	PRECAUTIONS	27
9-1	MOUNTING PRECAUTIONS	27
9-2	OPERATING PRECAUTIONS	27
9-3	ELECTROSTATIC DISCHARGE CONTROL	28
9-4	PRECAUTIONS FOR STRONG LIGHT EXPOSURE	28
9-5	STORAGE	28
9-6	HANDLING PRECAUTIONS FOR PROTECTION FILM	28
9-7	OPERATING GONDITION GUIDE	28

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

RECORD OF REVISIONS

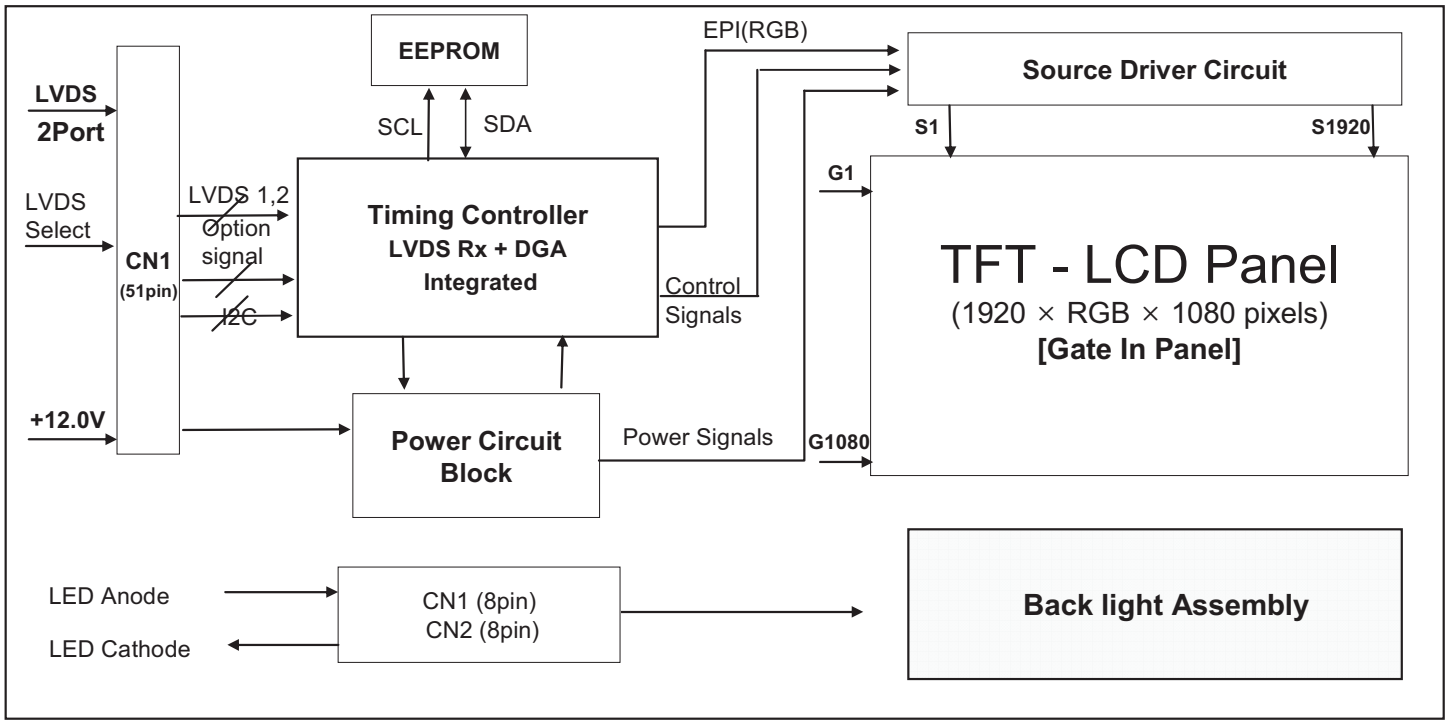
Revision No.	Revision Date	Page	Description
0.0	Aug, 08, 2011	-	Preliminary Specification(First Draft)
0.1	Sep, 03, 2011	3	Surface Treatment Changed
0.2	Oct, 06, 2011	22, 23	Mechanical Drawing is Updated
0.3	Nov, 04, 2011	22	Mechanical Drawing is Updated

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

1. General Description

The LC470EUE is a Color Active Matrix Liquid Crystal Display with an integral Light Emitting Diode (LED) backlight system. The matrix employs a-Si Thin Film Transistor as the active element. It is a transmissive display type which is operating in the normally black mode. It has a 46.96 inch diagonally measured active display area with WUXGA resolution (1080 vertical by 1920 horizontal pixel array). Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arrayed in vertical stripes. Gray scale or the luminance of the sub-pixel color is determined with a 8-bit gray scale signal for each dot. Therefore, it can present a palette of more than 16.7Milion colors.
It has been designed to apply the 8-bit 2-port LVDS interface.
It is intended to support LCD TV, PCTV where high brightness, super wide viewing angle, high color gamut, high color depth and fast response time are important.



General Features

Active Screen Size	46.96 inches(1192.87mm) diagonal
Outline Dimension	1070.6(H) × 622.0(V) X 9.9(B)/22.0(D) mm (Typ.)
Pixel Pitch	0.5415 mm x 0.5415 mm
Pixel Format	1920 horiz. by 1080 vert. Pixels, RGB stripe arrangement
Color Depth	8bit, 16.7 Million colors
Luminance, White	360cd/m^2 (Center 1point ,Typ.)
Viewing Angle (CR>10)	Viewing angle free (R/L 178 (Min.), U/D 178 (Min.))
Power Consumption	Total 71.9(TBD) W (Typ.) (Logic=6.4(TBD)W, LED Backlight=65.5(TBD)W (IF_cathode=105mA))
Weight	10.8(TBD) Kg (Typ.)
Display Mode	Transmissive mode, Normally black
Surface Treatment	Hard coating(2H), Anti-glare treatment of the front polarizer (Haze < 1%)

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

2. Absolute Maximum Ratings

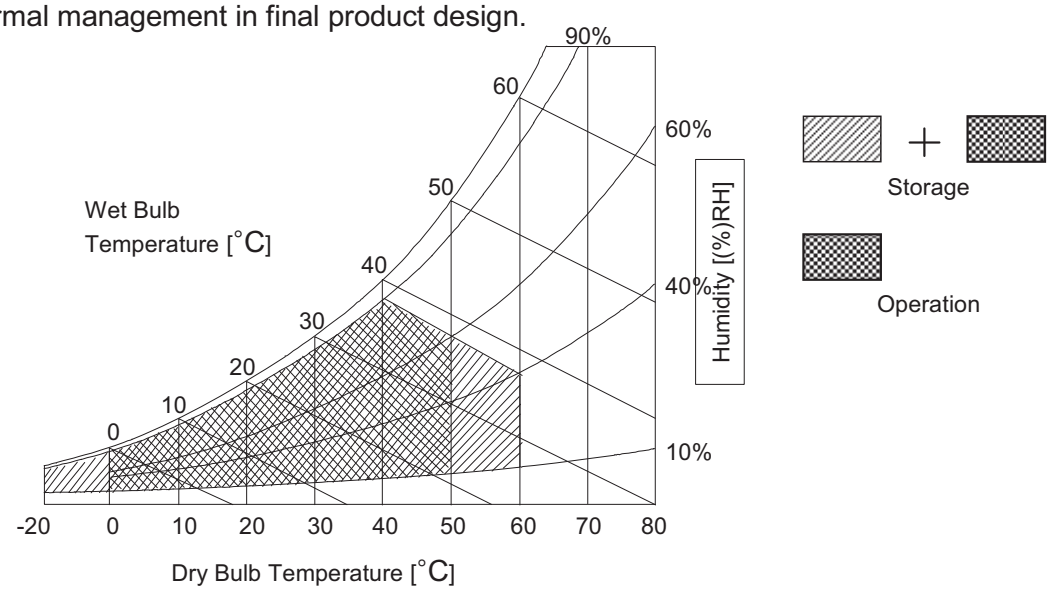
The following items are maximum values which, if exceeded, may cause faulty operation or permanent damage to the LCD module.

Table 1. ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value		Unit	Note
			Min	Max		
Power Input Voltage	LCD Circuit	VLCD	-0.3	+14.0	VDC	1
LED Input Voltage	Forward Voltage	VF	-	+67.0(TBD)	VDC	
T-Con Option Selection Voltage		VLOGIC	-0.3	+4.0	VDC	
Operating Temperature		TOP	0	+50	°C	2,3
Storage Temperature		TST	-20	+60	°C	
Panel Front Temperature		TSUR	-	+68	°C	4
Operating Ambient Humidity		HOP	10	90	%RH	2,3
Storage Humidity		HST	10	90	%RH	

Note1. Ambient temperature condition (Ta = 25 ± 2 °C)

2. Temperature and relative humidity range are shown in the figure below.
   Wet bulb temperature should be Max 39°C, and no condensation of water.
3. Gravity mura can be guaranteed below 40°C condition.
4. The maximum operating temperatures is based on the test condition that the surface temperature of display area is less than or equal to 68°C with LCD module alone in a temperature controlled chamber. Thermal management should be considered in final product design to prevent the surface temperature of display area from being over 68℃. The range of operating temperature may degraded in case of improper thermal management in final product design.



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3. Electrical Specifications

3-1. Electrical Characteristics

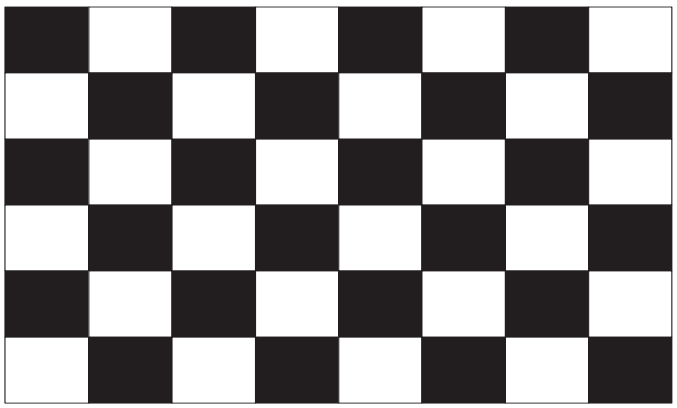
It requires two power inputs. One is employed to power for the LCD circuit. The other Is used for the LED backlight .

Table 2. ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value			Unit	Note
		Min	Typ	Max		
Circuit :						
Power Input Voltage	V_{LCD}	10.8	12.0	13.2	V_{DC}	
Power Input Current	I_{LCD}	-	537(TBD)	698(TBD)	mA	1
		-	790(TBD)	1027(TBD)	mA	2
Power Consumption	P_{LCD}		6.4(TBD)	8.4(TBD)	Watt	1
Rush current	I_{RUSH}	-	-	3.0(TBD)	A	3

Note
1. The specified current and power consumption are under the V_{LCD}=12.0V, Ta=25 ± 2°C, f_V=60Hz condition , and mosaic pattern(8 x 6) is displayed and f_V is the frame frequency.
2. The current is specified at the maximum current pattern.
3. The duration of rush current is about 2ms and rising time of power input is 0.5ms (min.).
4. Ripple voltage level is recommended under ±5% of typical voltage

White : 255 Gray
Black : 0 Gray



Mosaic Pattern(8 x 6)

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

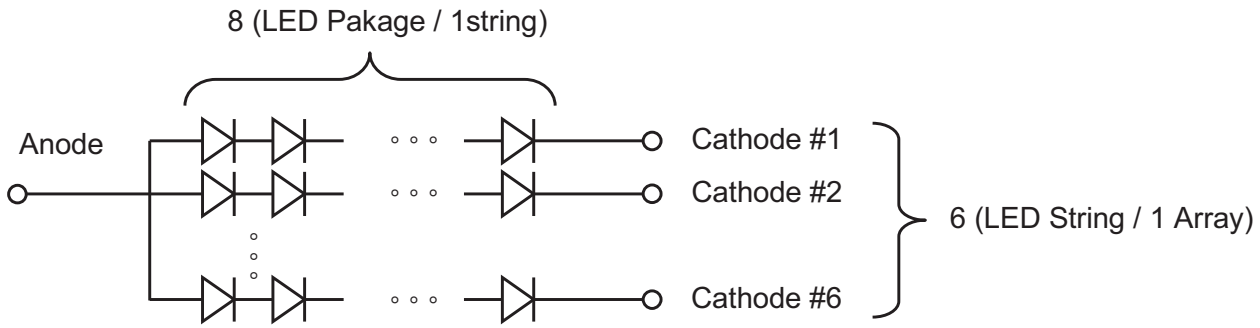
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Table 3. ELECTRICAL CHARACTERISTICS (Continue)

Parameter		Symbol	Values			Unit	Note
			Min	Typ	Max		
Backlight Assembly :							
Forward Current (one array)	Anode	$I_{F\ (anode)}$		630(TBD)		mAdc	±5%
	Cathode	$I_{F\ (cathode)}$	99.8(TBD)	105(TBD)	110.3(TBD)	mAdc	2, 3
Forward Voltage		V_F	47.2(TBD)	52.0(TBD)	56.8(TBD)	Vdc	4
Forward Voltage Variation		$\triangle V_F$			1.7(TBD)	Vdc	5
Power Consumption		P_{BL}		65.5(TBD)	71.6(TBD)	W	6
Burst Dimming Duty		On duty	1		100	%	
Burst Dimming Frequency		1/T		100/120		Hz	8
LED Array : (APPENDIX-Ⅵ)							
Life Time			30,000	50,000		Hrs	7

Notes :The design of the LED driver must have specifications for the LED array in LCD Assembly.
The electrical characteristics of LED driver are based on Constant Current driving type.
The performance of the LED in LCM, for example life time or brightness, is extremely influenced by the characteristics of the LED Driver. So, all the parameters of an LED driver should be carefully designed.
When you design or order the LED driver, please make sure unwanted lighting caused by the mismatch of the LED and the driver (no lighting, flicker, etc) has never been occurred. When you confirm it, the LCD–Assembly should be operated in the same condition as installed in your instrument.

1. Electrical characteristics are based on LED Array specification.
2. Specified values are defined for a Backlight Assembly. (IBL : 2 LED array, 630mA/LED array)
3. Each LED array has one anode terminal and six cathode terminals.
   The forward current(I_F) of the anode terminal is 630mA and it supplies 105mA into six strings, respectively



4. The forward voltage(V_F) of LED array depends on ambient temperature (Appendix-Ⅶ)
5. $\triangle V_F$ means Max V_F-Min V_F in one Backlight. So V_F variation in a Backlight isn't over Max. 1.7V
6. Maximum level of power consumption is measured at initial turn on.
   Typical level of power consumption is measured after 1hrs aging at 25 ± 2°C.
7. The life time(MTTF) is determined as the time at which brightness of the LED is 50% compared to that of initial value at the typical LED current on condition of continuous operating at 25 ± 2°C, based on duty 100%.
8. The reference method of burst dimming duty ratio.
   It is recommended to use synchronous V-sync frequency to prevent waterfall
   (Vsync x 2 =Burst Frequency)

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-2. Interface Connections

This LCD module employs three kinds of interface connection, 51-pin connector is used for the module electronics and 8-pin, 8-pin connectors are used for the integral backlight system.

3-2-1. LCD Module

-LCD Connector(CN1): FI-RE51S-HF(manufactured by JAE)
- Mating Connector : FI-R51HL(JAE) or compatible

Table 4. MODULE CONNECTOR(CN1) PIN CONFIGURATION

No	Symbol	Description	No	Symbol	Description
1	NC or GND	No Connection or Ground	27	NC	No connection
2	NC	No Connection (Note 4)	28	R2AN	SECOND LVDS Receiver Signal (A-)
3	NC	No Connection (Note 4)	29	R2AP	SECOND LVDS Receiver Signal (A+)
4	NC	No Connection (Note 4)	30	R2BN	SECOND LVDS Receiver Signal (B-)
5	NC	No Connection (Note 4)	31	R2BP	SECOND LVDS Receiver Signal (B+)
6	NC	No Connection (Note 4)	32	R2CN	SECOND LVDS Receiver Signal (C-)
7	LVDS Select	'H' =JEIDA , 'L' or NC = VESA	33	R2CP	SECOND LVDS Receiver Signal (C+)
8	NC	No Connection (Note 4)	34	GND	Ground
9	NC	No Connection (Note 4)	35	R2CLKN	SECOND LVDS Receiver Clock Signal(-)
10	NC	No Connection (Note 4)	36	R2CLKP	SECOND LVDS Receiver Clock Signal(+)
11	GND	Ground	37	GND	Ground
12	R1AN	FIRST LVDS Receiver Signal (A-)	38	R2DN	SECOND LVDS Receiver Signal (D-)
13	R1AP	FIRST LVDS Receiver Signal (A+)	39	R2DP	SECOND LVDS Receiver Signal (D+)
14	R1BN	FIRST LVDS Receiver Signal (B-)	40	NC	No connection
15	R1BP	FIRST LVDS Receiver Signal (B+)	41	NC	No connection
16	R1CN	FIRST LVDS Receiver Signal (C-)	42	NC or GND	No Connection or Ground
17	R1CP	FIRST LVDS Receiver Signal (C+)	43	NC or GND	No Connection or Ground
18	GND	Ground	44	GND	Ground (Note5)
19	R1CLKN	FIRST LVDS Receiver Clock Signal(-)	45	GND	Ground
20	R1CLKP	FIRST LVDS Receiver Clock Signal(+)	46	GND	Ground
21	GND	Ground	47	NC	No connection
22	R1DN	FIRST LVDS Receiver Signal (D-)	48	VLCD	Power Supply +12.0V
23	R1DP	FIRST LVDS Receiver Signal (D+)	49	VLCD	Power Supply +12.0V
24	NC	No connection	50	VLCD	Power Supply +12.0V
25	NC	No connection	51	VLCD	Power Supply +12.0V
26	NC or GND	No Connection or Ground	-	-	-

Note
1. All GND(ground) pins should be connected together to the LCD module's metal frame.
2. All V_{LCD} (power input) pins should be connected together.
3. All Input levels of LVDS signals are based on the EIA 644 Standard.
4. #1~#6 & #8~#10 NC (No Connection): These pins are used only for LGD (Do not connect)
5. Specific pin No. #44 is used for "No signal detection" of system signal interface.
   It should be GND for NSB(No Signal Black) during the system interface signal is not.
   If this pin is "H", LCD Module displays AGP(Auto Generation Pattern).

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-2-2. Backlight Module

[CN201]

1) LED Array ass`y Connector (Plug)

: HS100-L08N-N62 (black color, manufactured by UJU)

2) Mating Connector (Receptacle)

: IS100-L08T-C46 (black color, manufactured by UJU)

[CN202]

1) LED Array ass`y Connector (Plug)

: HS100-L08N-N62-A (natural color, manufactured by UJU)

2) Mating Connector (Receptacle)

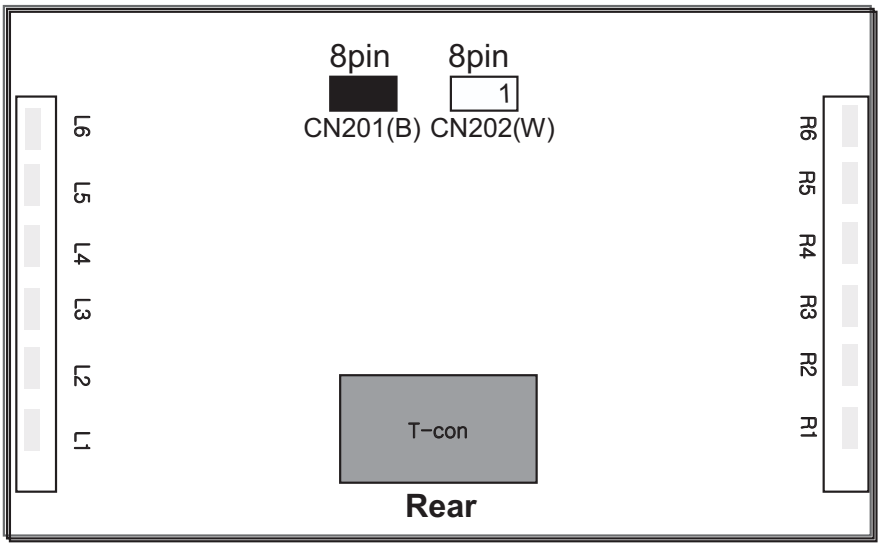
: IS100-L08T-C46-A (natural color, manufactured by UJU)

Table 5. BACKLIGHT CONNECTOR PIN CONFIGURATION(CN201,CN202)

No	Symbol(CN201)	Description	Note
1	L1 Cathode	LED Output Current	
2	L2 Cathode	LED Output Current	
3	L3 Cathode	LED Output Current	
4	L4 Cathode	LED Output Current	
5	L5 Cathode	LED Output Current	
6	L6 Cathode	LED Output Current	
7	N.C	Open	
8	Anode_L	LED Input Current for L1~L6	

No	Symbol(CN202)	Description	Note
1	Anode_R	LED Input Current for R1~R6	
2	N.C	Open	
3	R6 Cathode	LED Output Current	
4	R5 Cathode	LED Output Current	
5	R4 Cathode	LED Output Current	
6	R3 Cathode	LED Output Current	
7	R2 Cathode	LED Output Current	
8	R1 Cathode	LED Output Current	

◆ Rear view of LCM



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-3. Signal Timing Specifications

Table 6. shows the signal timing required at the input of the LVDS transmitter. All of the interface signal timings should be satisfied with the following specification for normal operation.

Table 6. TIMING TABLE (DE Only Mode)

ITEM		Symbol	Min	Typ	Max	Unit	Note
Horizontal	Display Period	tHV	960	960	960	tCLK	1920 / 2
	Blank	tHB	100	140	240	tCLK	1
	Total	tHP	1060	1100	1200	tCLK	
Vertical	Display Period	tVV	1080	1080	1080	Lines	
	Blank	tVB	20 (228)	45 (270)	69 (300)	Lines	1
	Total	tVP	1100 (1308)	1125 (1350)	1149 (1380)	Lines	

ITEM		Symbol	Min	Typ	Max	Unit	Note
Frequency	DCLK	fCLK	63.00	74.25	78.00	MHz	
	Horizontal	fH	57.3	67.5	70	KHz	2
	Vertical	fV	57 (47)	60 (50)	63 (53)	Hz	2 NTSC (PAL)

Note: 1. The input of HSYNC & VSYNC signal does not have an effect on normal operation (DE Only Mode). If you use spread spectrum of EMI, add some additional clock to minimum value for clock margin.

2. The performance of the electro-optical characteristics may be influenced by variance of the vertical refresh rate and the horizontal frequency

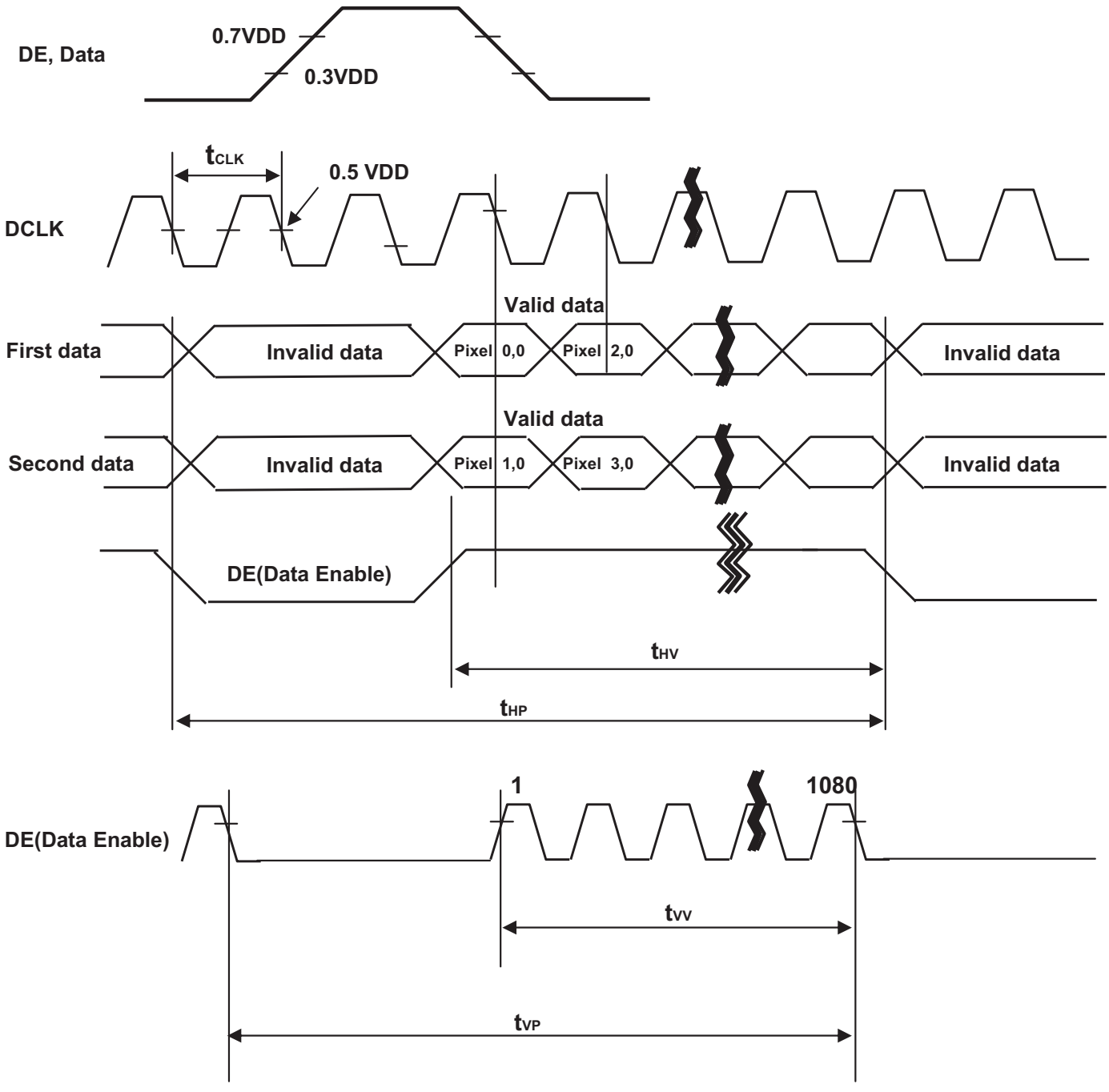
※ Timing should be set based on clock frequency.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-4. LVDS Signal Specification

3-4-1. LVDS Input Signal Timing Diagram

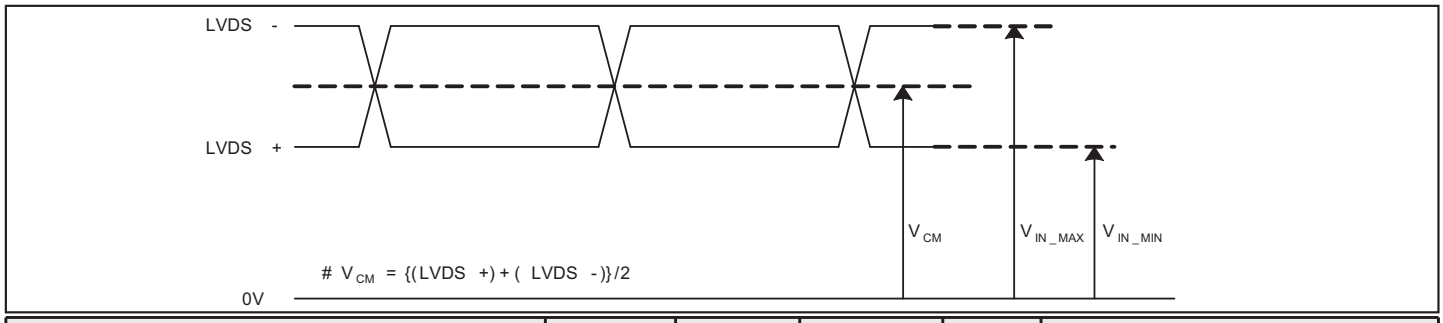


One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

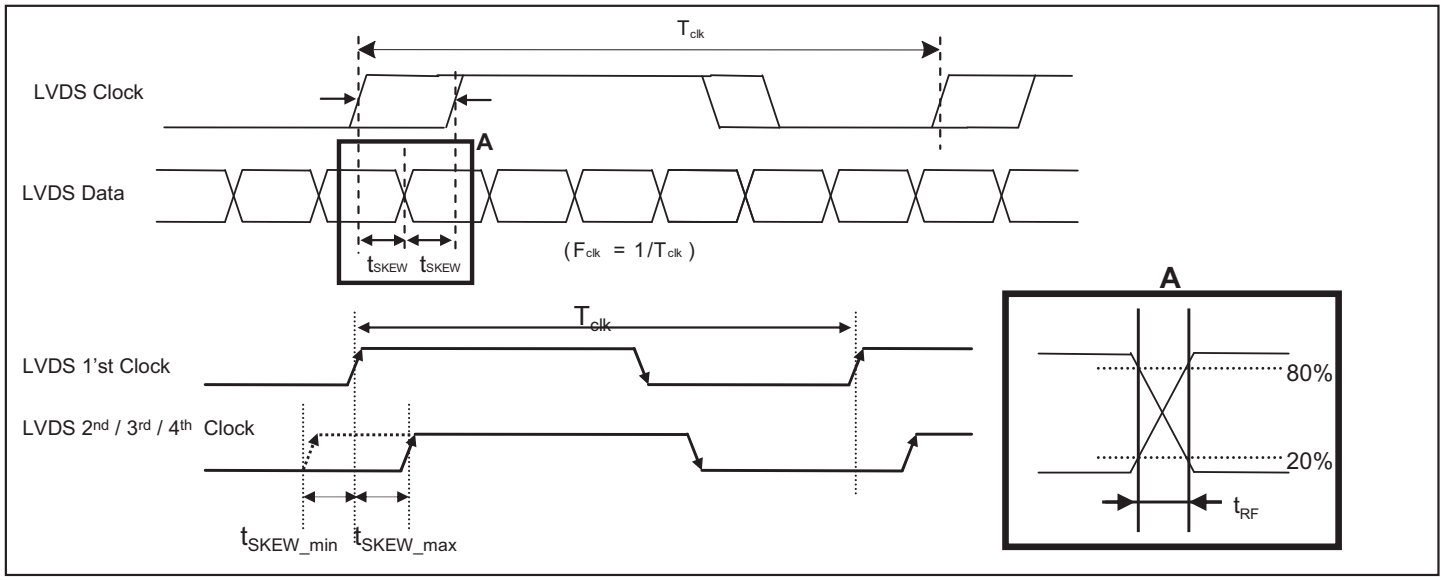
3-4-2. LVDS Input Signal Characteristics

1) DC Specification



Description	Symbol	Min	Max	Unit	Note
LVDS Common mode Voltage	V_{CM}	1.0	1.5	V	-
LVDS Input Voltage Range	V_{IN}	0.7	1.8	V	-
Change in common mode Voltage	ΔVCM	-	250	mV	-

2) AC Specification

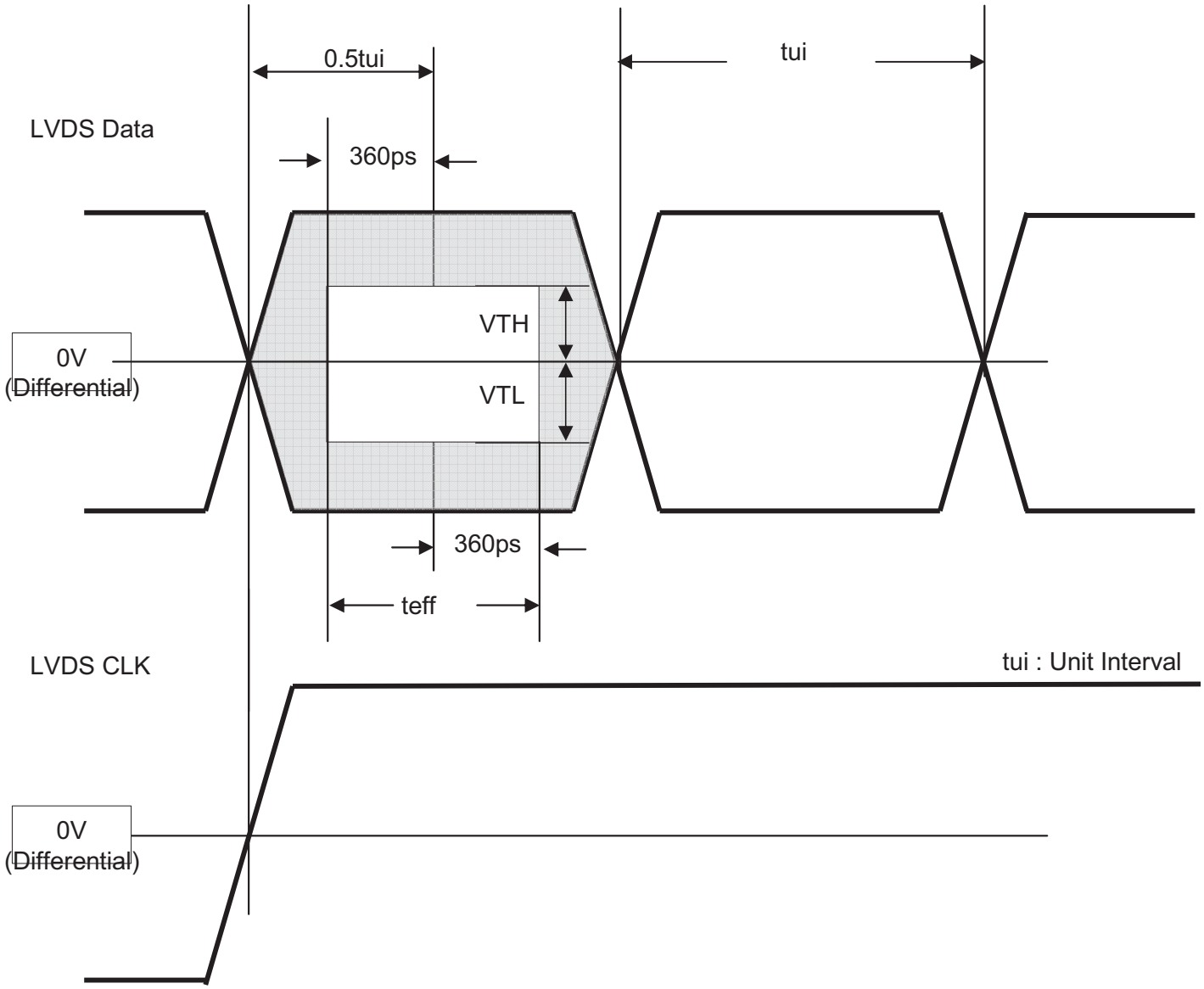


Description		Symbol	Min	Max	Unit	Note
LVDS Differential Voltage	High Threshold	V_{TH}	100	600	mV	3
	Low Threshold	V_{TL}	-600	-100	mV	
LVDS Clock to Data Skew		t_{SKEW}	-	$\|(0.2*T_{clk})/7\|$	ps	-
LVDS Clock/DATA Rising/Falling time		t_{RF}	260	$\|(0.3*T_{clk})/7\|$	ps	2
Effective time of LVDS		t_{eff}	$\|\pm 360\|$	-	ps	-
LVDS Clock to Clock Skew (Even to Odd)		t_{SKEW_EO}	-	$\|1/7*T_{clk}\|$	ps	-

Note 1. All Input levels of LVDS signals are based on the EIA 644 Standard.
2. If t_{RF} isn't enough, t_{eff} should be meet the range.
3. LVDS Differential Voltage is defined within t_{eff}

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心



* This accumulated waveform is tested with differential probe

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-5. Color Data Reference

The brightness of each primary color(red,green,blue) is based on the 8bit gray scale data input for the color. The higher binary input, the brighter the color. Table 7. provides a reference for color versus data input.

Table 7. COLOR DATA REFERENCE

Color		Input Color Data																							
		RED								GREEN								BLUE							
		MSB							LSB	MSB							LSB	MSB							LSB
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Color	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red (255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green (255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue (255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
RED	RED (000)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (001)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	...					...								...								...			
	RED (254)	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RED (255)	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREEN	GREEN (000)	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0	0	0	0	0	0	0
	GREEN (001)	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0	0	0	0	0	0	0	0
	...					...								...								...			
	GREEN (254)	0	0	0	0	0	0	0	0	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	0	0	0	0	0	0	0	0
	GREEN (255)	0	0	0	0	0	0	0	0	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	0	0	0	0	0	0	0
BLUE	BLUE (000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	BLUE (001)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
	...					...								...								...			
	BLUE (254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**0**
	BLUE (255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3-6. Power Sequence

3-6-1. LCD Driving circuit

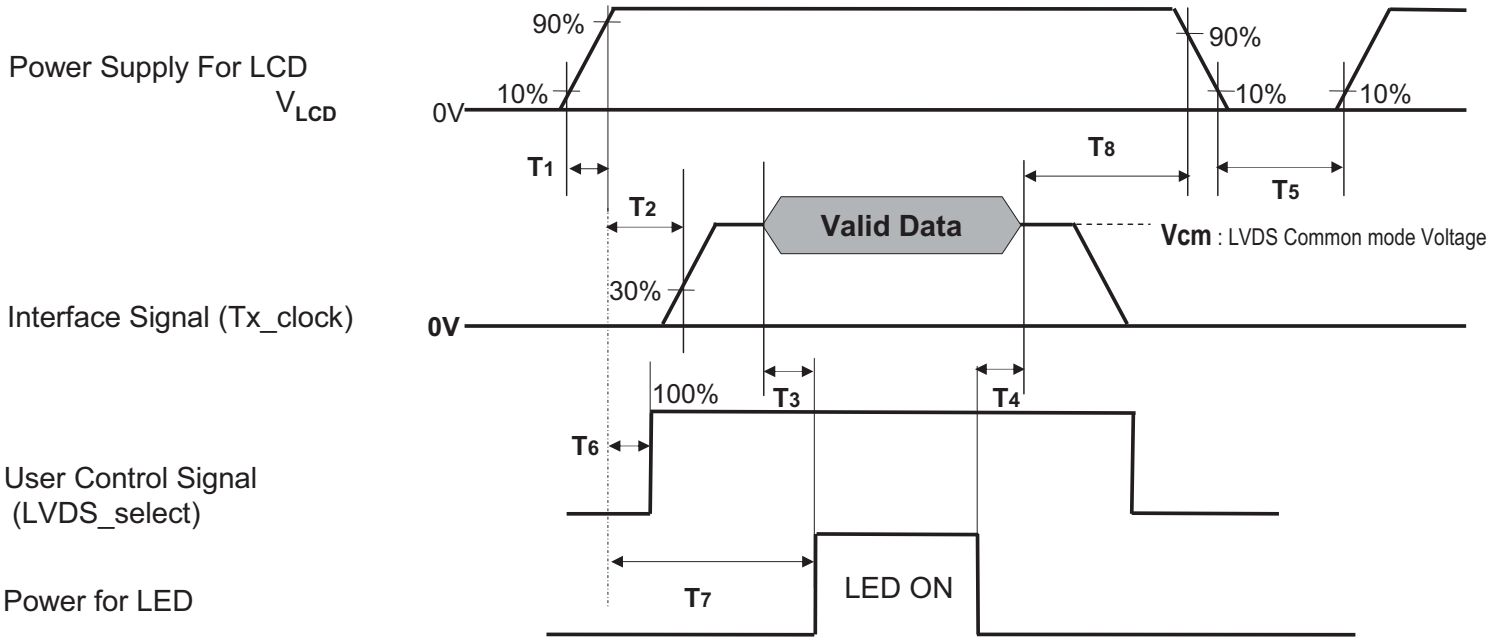


Table 8. POWER SEQUENCE

Parameter	Value			Unit	Notes
	Min	Typ	Max		
T1	0.5	-	20	ms	1
T2	0	-	-	ms	2
T3	200	-	-	ms	3
T4	200	-	-	ms	3
T5	1.0	-	-	s	4
T6	-	-	T2	ms	5
T7	0.5	-	-	s	6
T8	100	-	-	ms	7

Note :

1. Even though T1 is over the specified value, there is no problem if I2T spec of fuse is satisfied.
2. If T2 is satisfied with specification after removing LVDS Cable, there is no problem.
3. The T3 / T4 is recommended value, the case when failed to meet a minimum specification, abnormal display would be shown. There is no reliability problem.
4. T5 should be measured after the Module has been fully discharged between power off and on period.
5. If the on time of signals (Interface signal and user control signals) precedes the on time of Power (V_{LCD}), it will be happened abnormal display. When T6 is NC status, T6 doesn't need to be measured.
6. If there is no abnormal display, no problem.
7. It is recommendation specification that T8 has to be 100ms as a minimum value.

※ Please avoid floating state of interface signal at invalid period.

※ When the power supply for LCD (VLCD) is off, be sure to pull down the valid and invalid data to 0V.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

4. Optical Specification

Optical characteristics are determined after the unit has been 'ON' and stable in a dark environment at 25±2°C. The values are specified at distance 50cm from the LCD surface at a viewing angle of Φ and θ equal to 0 °. FIG. 1 shows additional information concerning the measurement equipment and method.

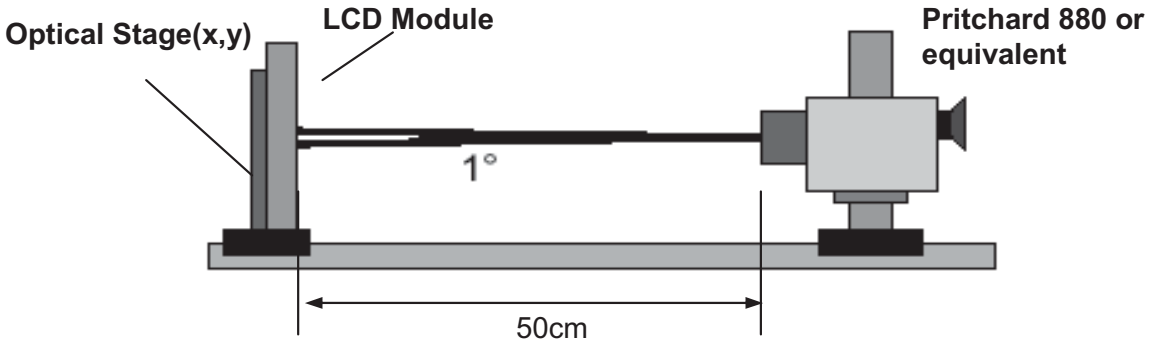


FIG. 1 Optical Characteristic Measurement Equipment and Method

Table 9. OPTICAL CHARACTERISTICS

Ta= 25±2°C, V_{LCD}=12.0V, fv=60Hz, Dclk=74.25MHz, IF_cathode = 105mA (Typ)

Parameter			Symbol		Value Min	Value Typ	Value Max	Unit	Note
Contrast Ratio			CR		1000	1400	-		1
Surface Luminance, white			L_{WH}	2D	290	360		cd/m²	2
				3D	110	135			7
Luminance Variation			δ_{WHITE}	5P			1.3		3
Response Time		Variation	G to G σ			6	9		5
		Gray to Gray (BW)	G to G BW			8	12	ms	4
Color Coordinates [CIE1931]		RED	Rx		Typ -0.03	0.636(TBD)	Typ +0.03		
			Ry			0.343(TBD)			
		GREEN	Gx			0.318(TBD)			
			Gy			0.605(TBD)			
		BLUE	Bx			0.155(TBD)			
			By			0.056(TBD)			
		WHITE	Wx			0.279			
			Wy			0.292			
Color Temperature						10,000		K	
Color Gamut						68		%	
Viewing Angle	2D (CR>10)	right(ϕ=0°)	θr (x axis)		89	-	-	degree	6
		left (ϕ=180°)	θl (x axis)		89	-	-		
		up (ϕ=90°)	θu (y axis)		89	-	-		
		down (ϕ=270°)	θd (y axis)		89	-	-		
	3D (CT≤10%)	up + down	θu (y axis) +θd (y axis)		16	20	-	degree	8
		up	θu (y axis)		7	-	-	degree	8, 9
		down	θd (y axis)		7	-	-	degree	
3D Crosstalk			3D C/T		-	1	3	%	8
Gray Scale					-	-	-		7

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Note : 1. Contrast Ratio(CR) is defined mathematically as :

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

It is measured at center 1-point.

2. Surface luminance are determined after the unit has been 'ON' and 1 Hour after lighting the backlight in a dark environment at 25±2°C. Surface luminance is the luminance value at center 1-point across the LCD surface 50cm from the surface with all pixels displaying white. For more information see the FIG. 2.

3. The variation in surface luminance , δ WHITE is defined as :
δ WHITE(5P) = Maximum(L_{on1},L_{on2}, L_{on3}, L_{on4}, L_{on5}) / Minimum(L_{on1},L_{on2}, L_{on3}, L_{on4}, L_{on5})
Where L_{on1} to L_{on5} are the luminance with all pixels displaying white at 5 locations .
For more information, see the FIG. 2.

4. Response time is the time required for the display to transit from any gray to white (Rise Time, Tr_R) and from any gray to black (Decay time, Tr_D). For additional information see the FIG. 3.
※ G to G_{BW} Spec stands for average value of all measured points.
Photo Detector : RD-80S / Field : 2 °

5. G to G σ is Variation of Gray to Gray response time composing a picture

$$\text{G to G } (\sigma) = \sqrt{\frac{\Sigma(Xi - u)^2}{N}}$$

Xi = Individual Data
u = Data average
N : The number of Data

6. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD module surface. For more information, see the FIG. 4.

7. Gray scale specification
Gamma Value is approximately 2.2. For more information, see the Table 10.

8. 3D performance specification is expressed by 3D luminance and 3D viewing angle.

9. The specification of 3D viewing angle is temporarily permitted by 5˚ until 4Q of 2011

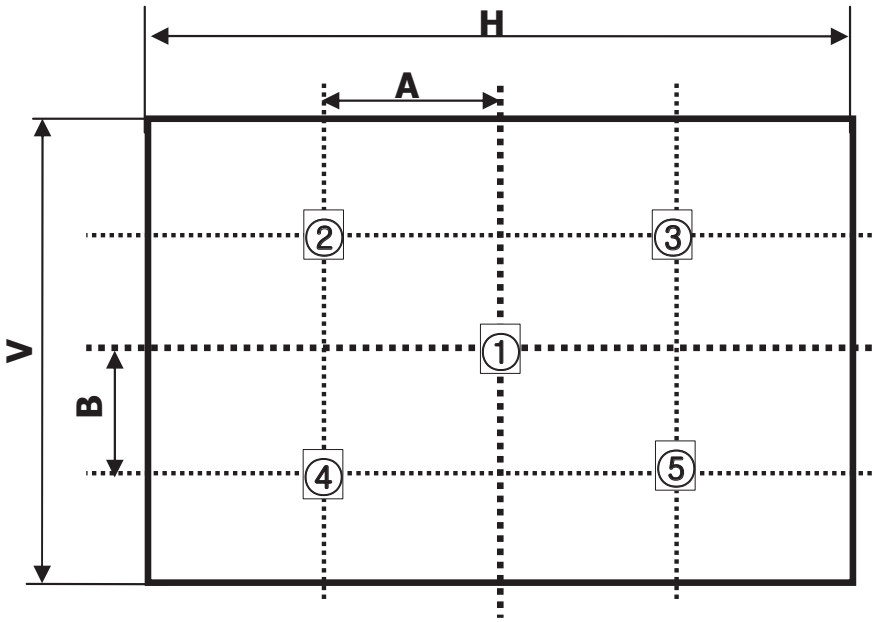
Table 10. GRAY SCALE SPECIFICATION

Gray Level	Luminance [%] (Typ)
L0	0.07
L15	0.27
L31	1.04
L47	2.49
L63	4.68
L79	7.66
L95	11.5
L111	16.1
L127	21.6
L143	28.1
L159	35.4
L175	43.7
L191	53.0
L207	63.2
L223	74.5
L239	86.7
L255	100

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Measuring point for surface luminance & luminance variation



A : H / 4 mm
B : V / 4 mm
@ H,V : Active Area

FIG. 2 5 Points for Luminance Measure

Response time is defined as the following figure and shall be measured by switching the input signal for "Gray(N)" and "Black or White".

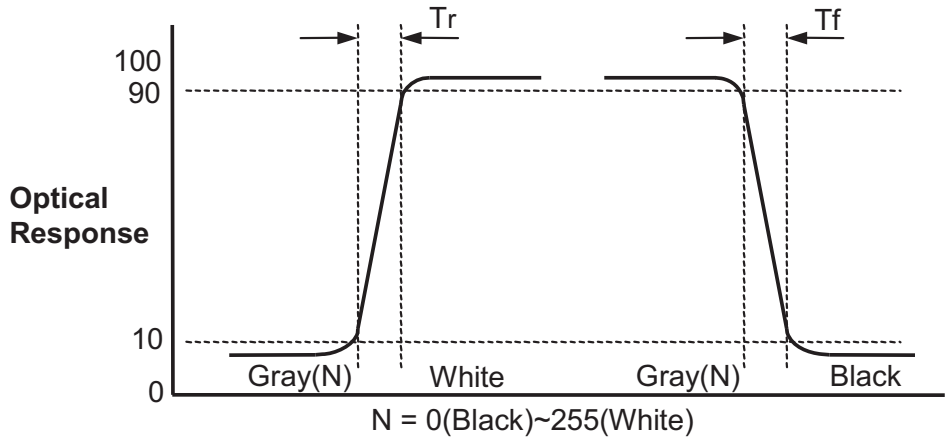


FIG. 3 Response Time

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

Dimension of viewing angle range

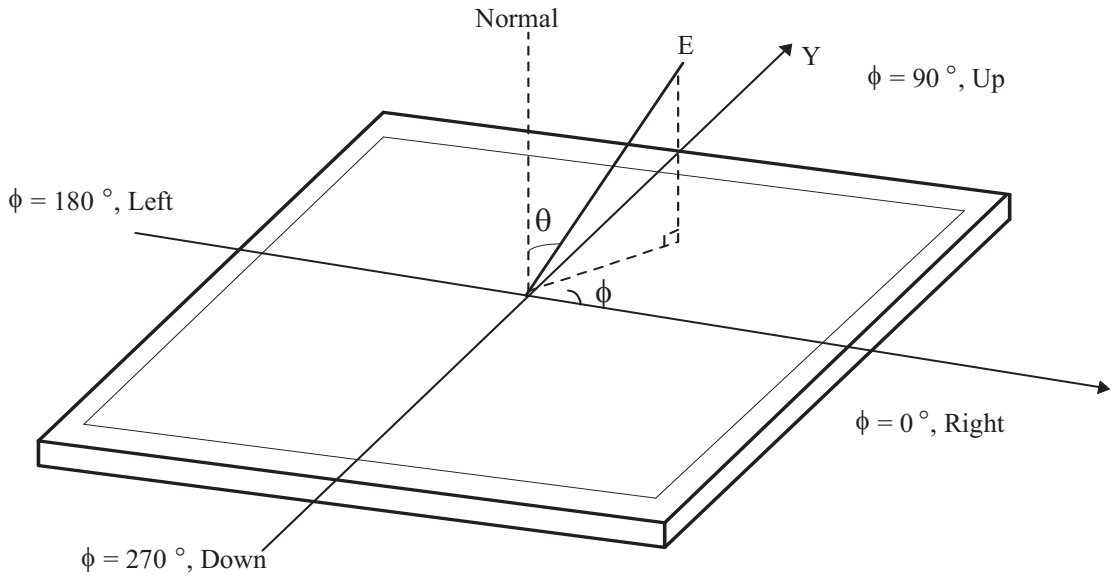
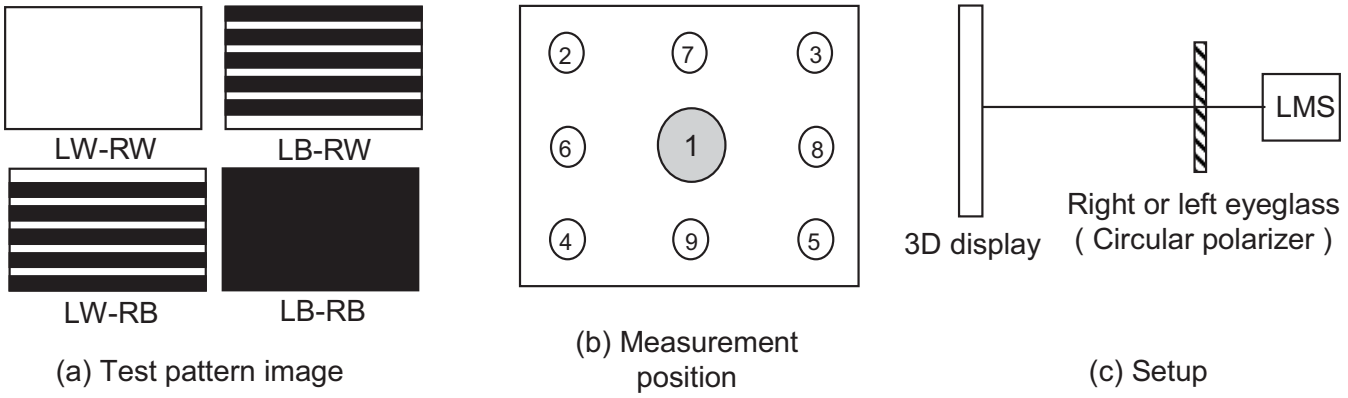


FIG. 4 Viewing Angle

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

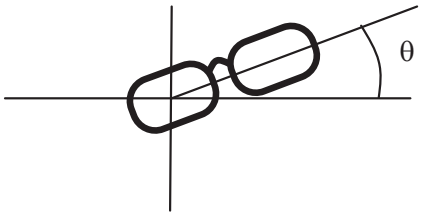


(a) Test pattern image

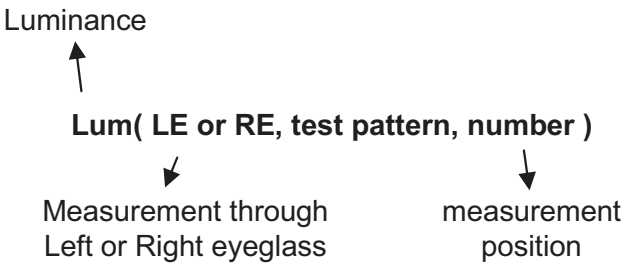
(b) Measurement position

(c) Setup

< FIG. 5. Measurement configuration>



< FIG. 6. Positioning eyeglass >



< FIG. 7. notation of luminance measurement >

In order to measure 3D luminance, 3D crosstalk and 3D viewing angle, it need to be prepared as below;

1) Measurement configuration

4-Test pattern images. Refer to FIG 5.

-. LW-RW : White for left and right eye

-. LW-RB : White for left eye and Black for right eye

-. LB-RW : Black for left eye and white for right eye

-. LB-RB : Black for left eye and right eye

Image files where black and white lines are displayed on even or odd lines.

Luminance measurement system (LMS) with narrow FOV (field of view) is used. Refer to FIG 1.

2) Positioning Eyeglass (refer to appendix-VII for standard specification of eyeglass)

Find angle of minimum transmittance.

This value would be provided beforehand or measured by the following steps;

(i) Test image (LB-RW) is displayed.

(ii) Left eyeglass are placed in front of LMS and luminance is measured, rotating right eyeglass such as FIG 6. The notation for luminance measurement is “Lum(LE, LB-RW,1)”.

(iii) Find the angle where luminance is minimum.

* Following measurements should be performed at the angle of minimum transmittance of eyeglass.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

3) Measurement of 3D luminance
(i) Test image (LW-RW) is displayed.
(ii) Left or right eyeglass are placed in front of LMS successively and luminance is measured at center 1 point where the notation for luminance measurement is "Lum(LE, LW-RW,1)" or "Lum(RE, LW-RW,1).

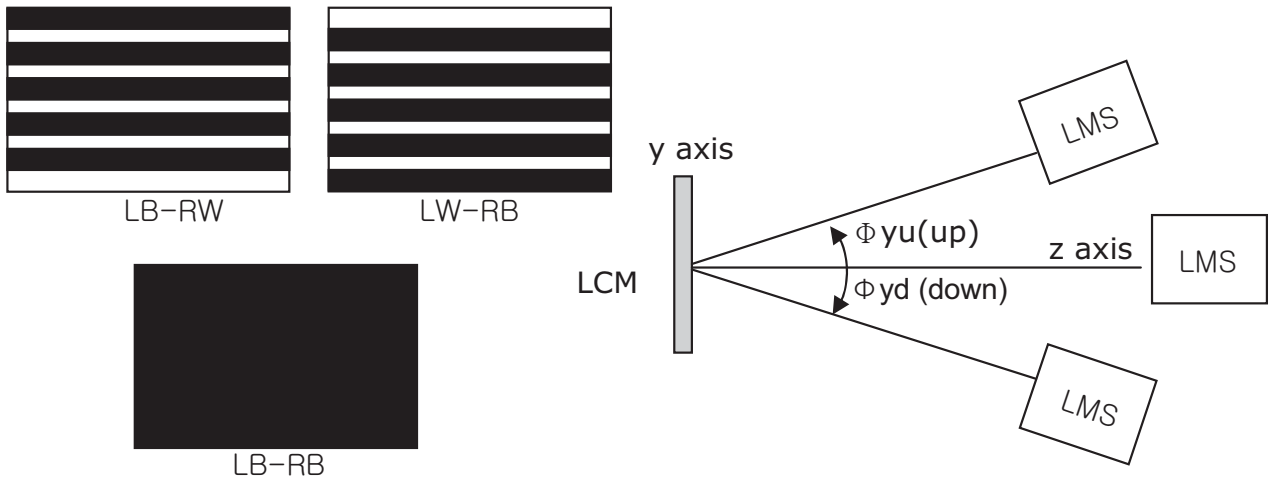
4) Measurement of 3D crosstalk
(i) Test image (LB-RW, LW-RB and LB-RB) is displayed.
(ii) Right or left eyeglass are placed in front of LMS successively and luminance is measured for position 1.
with rotating LMS or sample vertically.

$$\frac{\text{Lum(LE, LB-RW,1)} - \text{Lum(LE, LB-RB,1)}}{\text{Lum(LE, LW-RB,1)} - \text{Lum(LE, LB-RB,1)}}$$

or

$$\frac{\text{Lum(RE, LW-RB,1)} - \text{Lum(RE, LB-RB,1)}}{\text{Lum(RE, LB-RW,1)} - \text{Lum(RE, LB-RB,1)}}$$

5) Measurement of 3D Viewing Angle
3D viewing angle is the angle at which the 3D crosstalk is under 10%. The angles are determined for the vertical or y axis with respect to the z axis which is normal to the LCD module surface and measured for position 1. For more information , see the Fig 8



(a) Test pattern image (b) Measurement of 3D viewing angle (up/down)

< FIG. 8. Measurement of 3D crosstalk and 3D viewing angle >

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

5. Mechanical Characteristics

Table 11. provides general mechanical characteristics.

Table 11. MECHANICAL CHARACTERISTICS

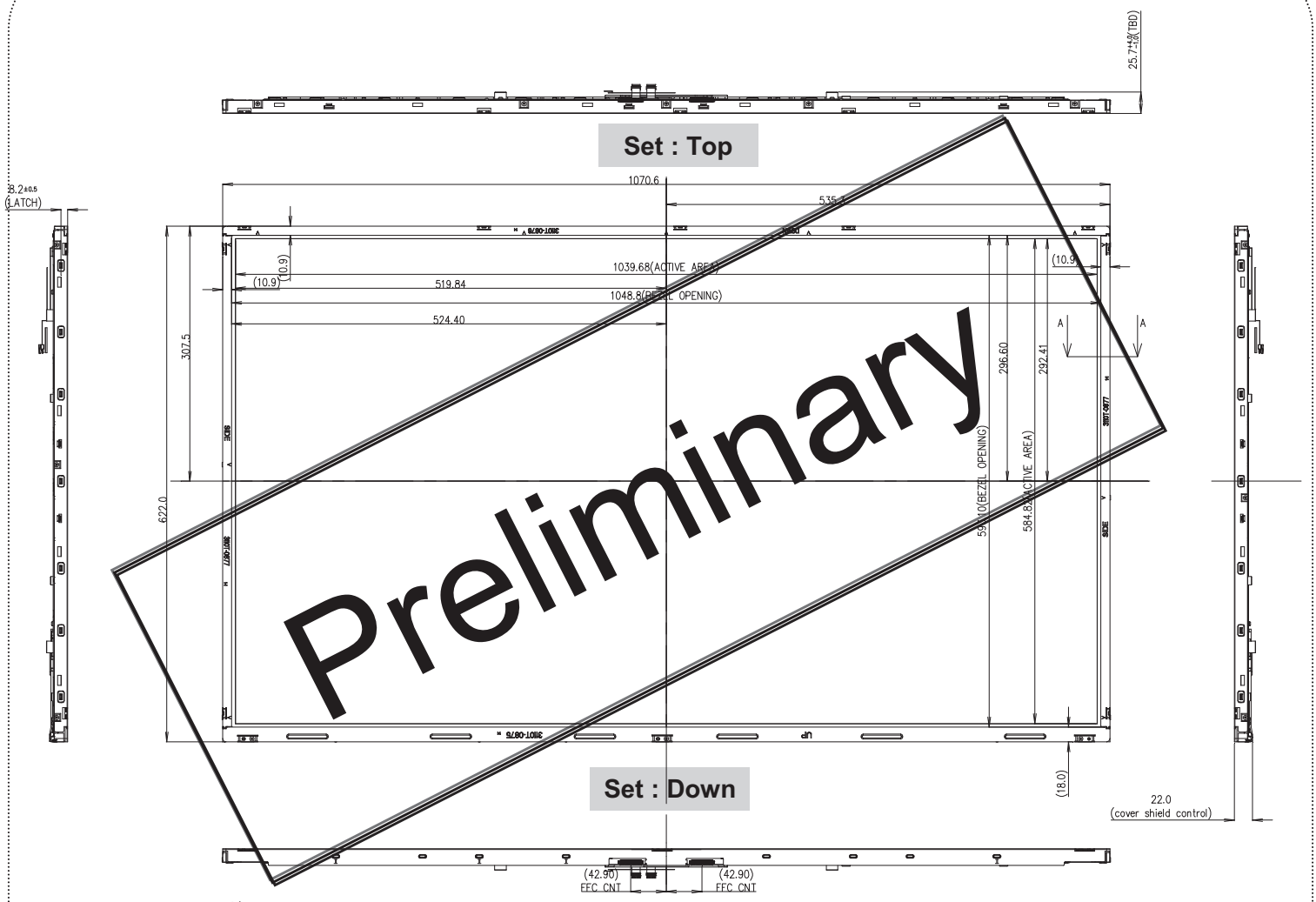
Item	Value	
Outline Dimension	Horizontal	1070.6 mm
	Vertical	622.0 mm
	Depth	9.9(B) / 22.0(D)mm
Bezel Area	Horizontal	1048.8 mm
	Vertical	593.1 mm
Active Display Area	Horizontal	1039.68 mm
	Vertical	584.82 mm
Weight	10.8(TBD) Kg (Typ.),11.5 (TBD) kg (Max.)	

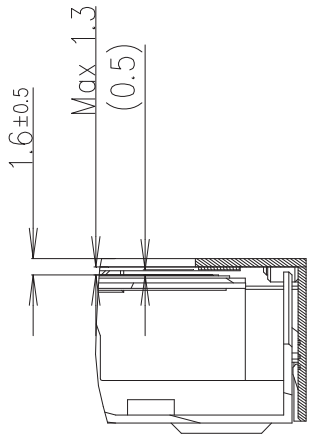
Note : Please refer to a mechanical drawing in terms of tolerance at the next page.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

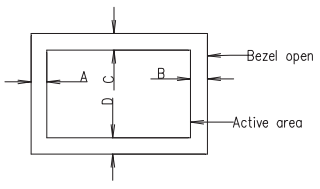
Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

[FRONT VIEW]





SECTION A–A
SCALE 1/1



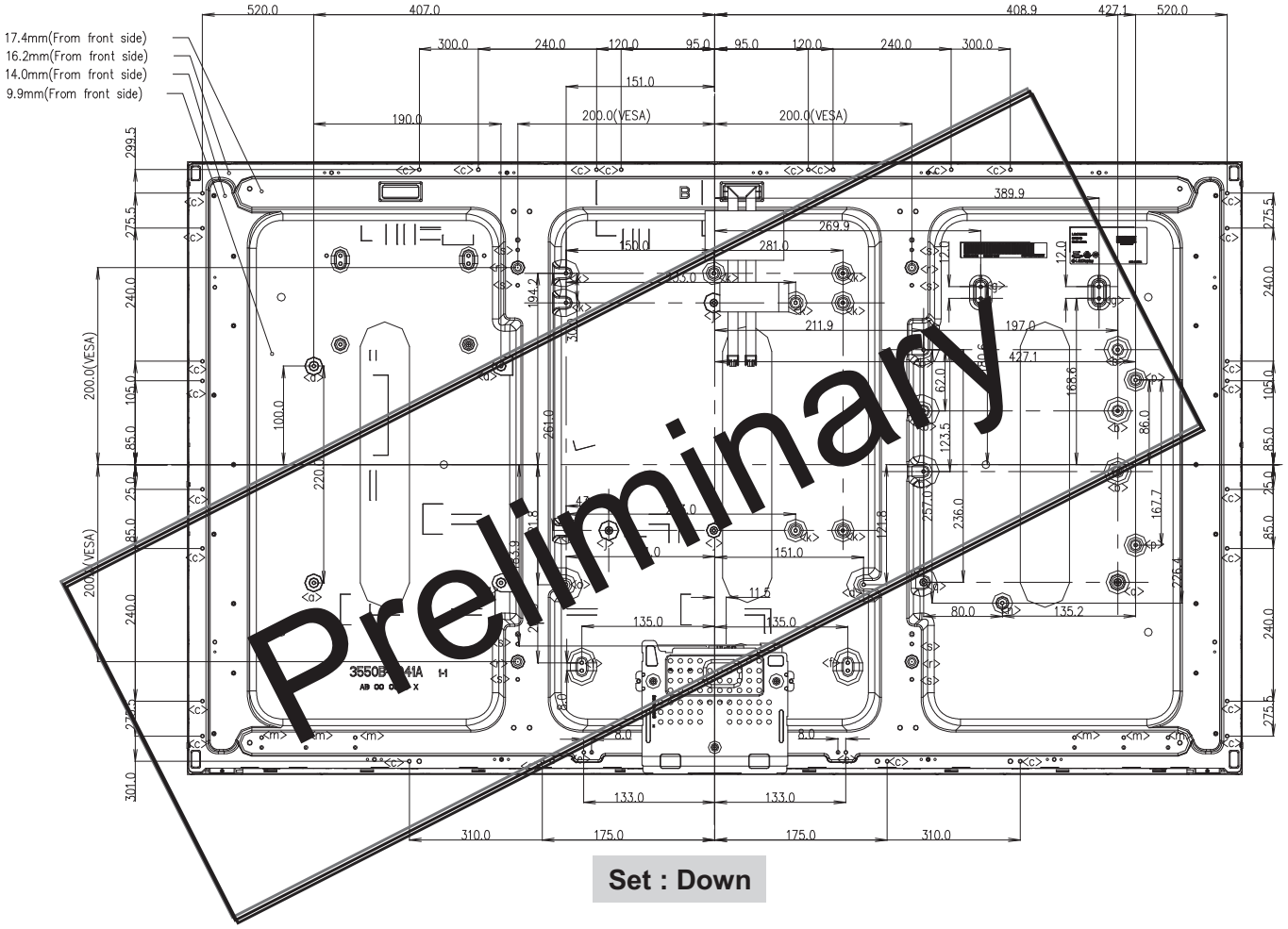
NOTES
1. UNSPECIFIED TOLERANCE IS 1.0mm.
2. TILT AND PARTIAL DISPOSITION TOLERANCE OF DISPLAY AREA AS FOLLOWING.
(a)X–DIRECTION : IA–BI ≦ 1.6mm.
(b)Y–DIRECTION : IC–DI ≦ 1.6mm.
3. Max>TORQUE : REFER TO TABLE.
4. Max. DEPTH : REFER TO TABLE.
5. THE SAME FEATURE MEANS THE SAME DIMENSION.
6. DESIGNER'S APPROVAL IS REQUIRED BEFORE MASS–PRODUCTION.
7. This drawing is only preliminary data and can be changed.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

[REAR VIEW]

Set : Top



Set : Down

ITEM	UDM Height (mm)	TAP	Max Depth (mm)	Torque (Kgf.cm)	Notes
<a>	11	M3	MAX 10	MAX 8.0	
<b>	6.4	M3	MAX 6	MAX 8.0	
<c>	–	M3	MAX 5	MAX 8.0	
<d>	7.5	M3	MAX 7	MAX 8.0	
<e>	7.5	M3	MAX 7	MAX 8.0	
<f>	7.5	M3	MAX 7	MAX 8.0	
<g>	4.0	M3	MAX 3.5	MAX 8.0	
<j>	4	M3	MAX 3.5	MAX 8.0	
<k>	4	M3	MAX 3.5	MAX 8.0	
<m>	7.5	M3	MAX 7.0	MAX 8.0	
<n>	2.8	M3	MAX 2.0	MAX 8.0	
<p>	4.1	M3	MAX 3.5	MAX 8.0	
<q>	6.4	M3	MAX 6.0	MAX 8.0	
<r>	8.3	M6	MAX 12.0	MAX 15.0	
<s>	–	M3	MAX 7	MAX 8.0	

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

6. Reliability

Table 12. ENVIRONMENT TEST CONDITION

No.	Test Item	Condition
1	High temperature storage test	Ta= 60°C 240h
2	Low temperature storage test	Ta= -20°C 240h
3	High temperature operation test	Ta= 50°C 50%RH 240h
4	Low temperature operation test	Ta= 0°C 240h
5	Vibration test (non-operating)	Wave form : random Vibration level : 1.0Grms Bandwidth : 10-300Hz Duration : X,Y,Z, Each direction per 10 min
6	Shock test (non-operating)	Shock level : 50G(X,Y axisTBD) 35G(Z axis TBD) Grms Waveform : half sine wave, 11ms Direction : ±X, ±Y, ±Z One time each direction
7	Humidity condition Operation	Ta= 40 °C ,90%RH
8	Altitude operating storage / shipment	0 - 15,000 ft 0 - 40,000 ft

Note : Before and after Reliability test, LCM should be operated with normal function.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

7. International Standards

7-1. Safety

a) UL 60065, Underwriters Laboratories Inc.
Audio, Video and Similar Electronic Apparatus - Safety Requirements.

b) CAN/CSA C22.2 No.60065:03, Canadian Standards Association.
Audio, Video and Similar Electronic Apparatus - Safety Requirements.

c) EN 60065, European Committee for Electrotechnical Standardization (CENELEC).
Audio, Video and Similar Electronic Apparatus - Safety Requirements.

d) IEC 60065, The International Electrotechnical Commission (IEC).
Audio, Video and Similar Electronic Apparatus - Safety Requirements.
(Including report of IEC60825-1:2001 clause 8 and clause 9)

Notes

1. Laser (LED Backlight) Information

Class 1M LED Product IEC60825-1 : 2001 Embedded LED Power (Class1M)

2. Caution
: LED inside.
Class 1M laser (LEDs) radiation when open.
Do not open while operating.

7-2. EMC

a) ANSI C63.4 "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz." American National Standards Institute (ANSI), 2003.

b) CISPR 22 "Information technology equipment – Radio disturbance characteristics – Limit and methods of measurement." International Special Committee on Radio Interference (CISPR), 2005.

c) CISPR 13 "Sound and television broadcast receivers and associated equipment – Radio disturbance characteristics – Limits and method of measurement." International Special Committee on Radio Interference (CISPR), 2006.

7-3. Environment

a) RoHS, Directive 2002/95/EC of the European Parliament and of the council of 27 January 2003

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

8. Packing

8-1. Information of LCM Label

a) Lot Mark

A	B	C	D	E	F	G	H	I	J	K	L	M

A,B,C : SIZE(INCH)
E : MONTH

D : YEAR
F ~ M : SERIAL NO.

Note

1. YEAR

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mark	A	B	C	D	E	F	G	H	J	K

2. MONTH

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mark	1	2	3	4	5	6	7	8	9	A	B	C

b) Location of Lot Mark

Serial NO. is printed on the label. The label is attached to the backside of the LCD module.
This is subject to change without prior notice.

8-2. Packing Form

a) Package quantity in one Pallet : 16 pcs

b) Pallet Size : 1300 mm(W) X 1140 mm(D) X 848.5 mm(H)

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

9. Precautions

Please pay attention to the followings when you use this TFT LCD module.

9-1. Mounting Precautions

(1) You must mount a module using specified mounting holes (Details refer to the drawings).
(2) You should consider the mounting structure so that uneven force (ex. Twisted stress) is not applied to the module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
(3) Please attach the surface transparent protective plate to the surface in order to protect the polarizer. Transparent protective plate should have sufficient strength in order to the resist external force.
(4) You should adopt radiation structure to satisfy the temperature specification.
(5) Acetic acid type and chlorine type materials for the cover case are not desirable because the former generates corrosive gas of attacking the polarizer at high temperature and the latter causes circuit break by electro-chemical reaction.
(6) Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
Do not touch the surface of polarizer for bare hand or greasy cloth.(Some cosmetics are detrimental to the polarizer.)
(7) When the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with petroleum benzine. Normal-hexane is recommended for cleaning the adhesives used to attach front / rear polarizers. Do not use acetone, toluene and alcohol because they cause chemical damage to the polarizer
(8) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
(9) Do not open the case because inside circuits do not have sufficient strength.

9-2. Operating Precautions

(1) Response time depends on the temperature.(In lower temperature, it becomes longer.)
(2) Brightness depends on the temperature. (In lower temperature, it becomes lower.)
And in lower temperature, response time(required time that brightness is stable after turned on) becomes longer
(3) Be careful for condensation at sudden temperature change.Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
(4) When fixed patterns are displayed for a long time, remnant image is likely to occur.
(5) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimized the interference.
(6) Please do not give any mechanical and/or acoustical impact to LCM. Otherwise, LCM can't be operated its full characteristics perfectly.
(7) A screw which is fastened up the steels should be a machine screw.
(if not, it can causes conductive particles and deal LCM a fatal blow)
(8) Please do not set LCD on its edge.
(9) The conductive material and signal cables are kept away from LED driver inductor to prevent abnormal display, sound noise and temperature rising.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

9-3. Electrostatic Discharge Control

Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly.

9-4. Precautions for Strong Light Exposure

Strong light exposure causes degradation of polarizer and color filter.

9-5. Storage

When storing modules as spares for a long time, the following precautions are necessary.

(1) Store them in a dark place. Do not expose the module to sunlight or fluorescent light. Keep the temperature between 5°C and 35°C at normal humidity.
(2) The polarizer surface should not come in contact with any other object.
It is recommended that they be stored in the container in which they were shipped.
(3) Storage condition is guaranteed under packing conditions.
(4) The phase transition of Liquid Crystal in the condition of the low or high storage temperature will be recovered when the LCD module returns to the normal condition

9-6. Handling Precautions for Protection Film

(1) The protection film is attached to the bezel with a small masking tape.
When the protection film is peeled off, static electricity is generated between the film and polarizer.
This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.
(2) When the module with protection film attached is stored for a long time, sometimes there remains a very small amount of glue still on the bezel after the protection film is peeled off.
(3) You can remove the glue easily. When the glue remains on the bezel surface or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with normal-hexane.

9-7. Operating condition guide

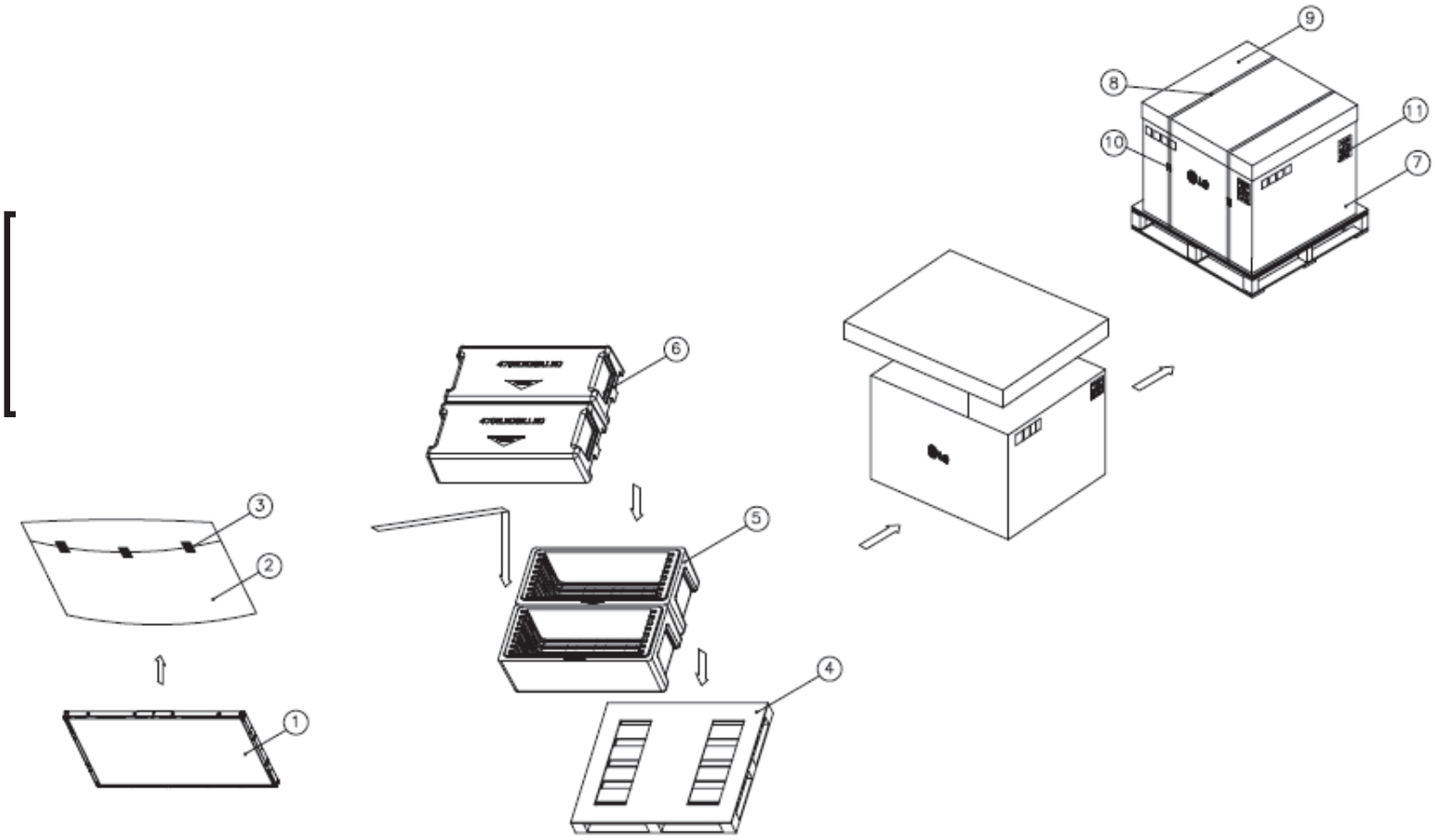
(1) The LCD product should be operated under normal conditions. Normal condition is defined as below;
- Temperature : 5 ~ 40 ℃, normal humidity
- Display pattern : continually changing pattern (Not stationary)
(2) If the product will be used in extreme conditions such as high temperature, display patterns or operation time etc..,
It is strongly recommended to contact LGD for Qualification engineering advice. Otherwise, its reliability and function may not be guaranteed. Extreme conditions are commonly found at Airports, Transit Stations, Banks, Stock market, and Controlling systems. The LCD product should be applied by global standard environment. (refer ETSI EN 300, IEC 60721)

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX-I

■ Pallet Ass'y



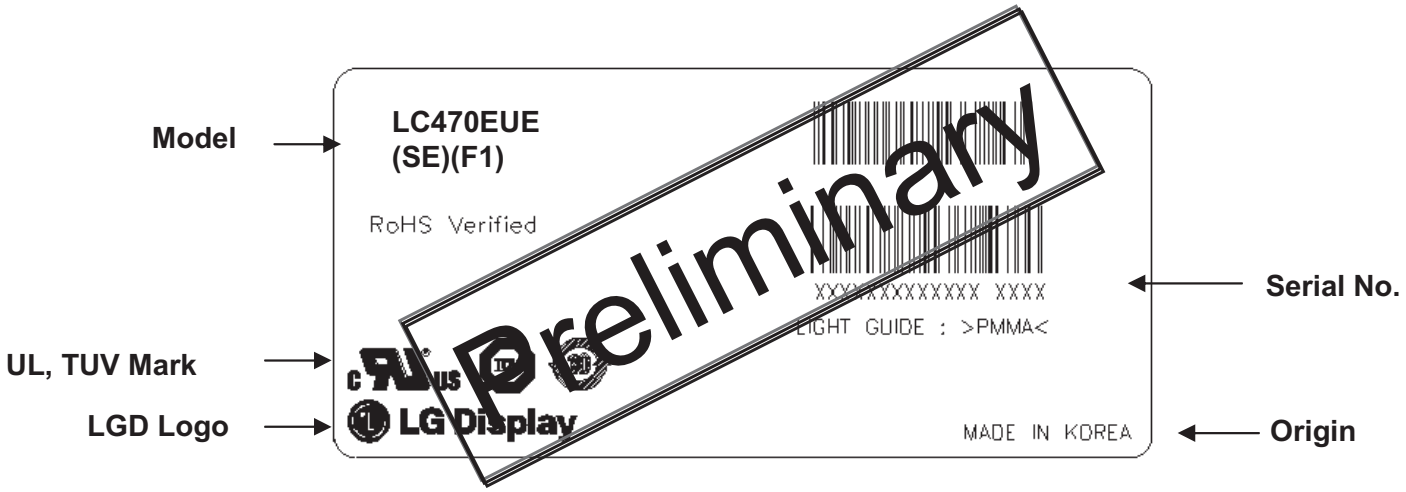
NO.	DESCRIPTION	MATERIAL
1	LCD Module	47" LCD
2	BAG	AL Bag
3	TAPE	MASKING 20MMX50M
4	PALLET	Plywood 1300X1140X125.5mm
5	PACKING,BOTTOM	EPS
6	PACKING,TOP	EPS
7	ANGLE,PACKING	PAPER
8	BAND	PP
9	ANGLE,COVER	PAPER
10	BAND	STEEL OR PP
11	LABEL	YUPO 80G 100X70

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- II-1

■ LCM Label



■ Production site

- LG Display (Paju) Co., LTD

Note 1.The origin of LCM Label will be changed according to the production site.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- II-2

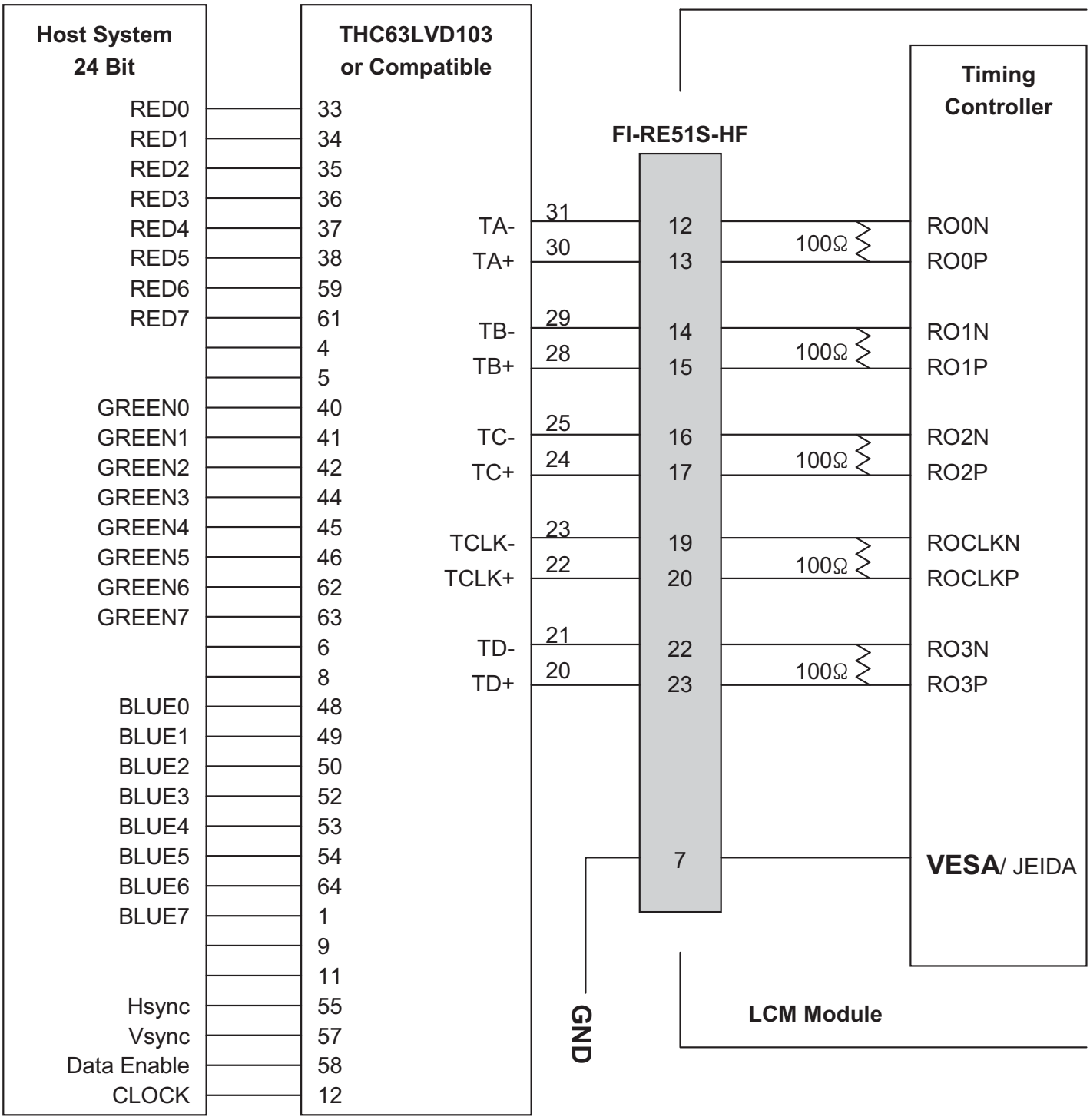
■ Pallet Label

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- III-1

■ Required signal assignment for Flat Link (Thine : THC63LVD103) Transmitter(Pin7= **"L" or "NC"**)



Note: 1. The LCD module uses a 100 Ohm[Ω] resistor between positive and negative lines of each receiver input.

2. Refer to LVDS Transmitter Data Sheet for detail descriptions. (THC63LVD103 or Compatible)

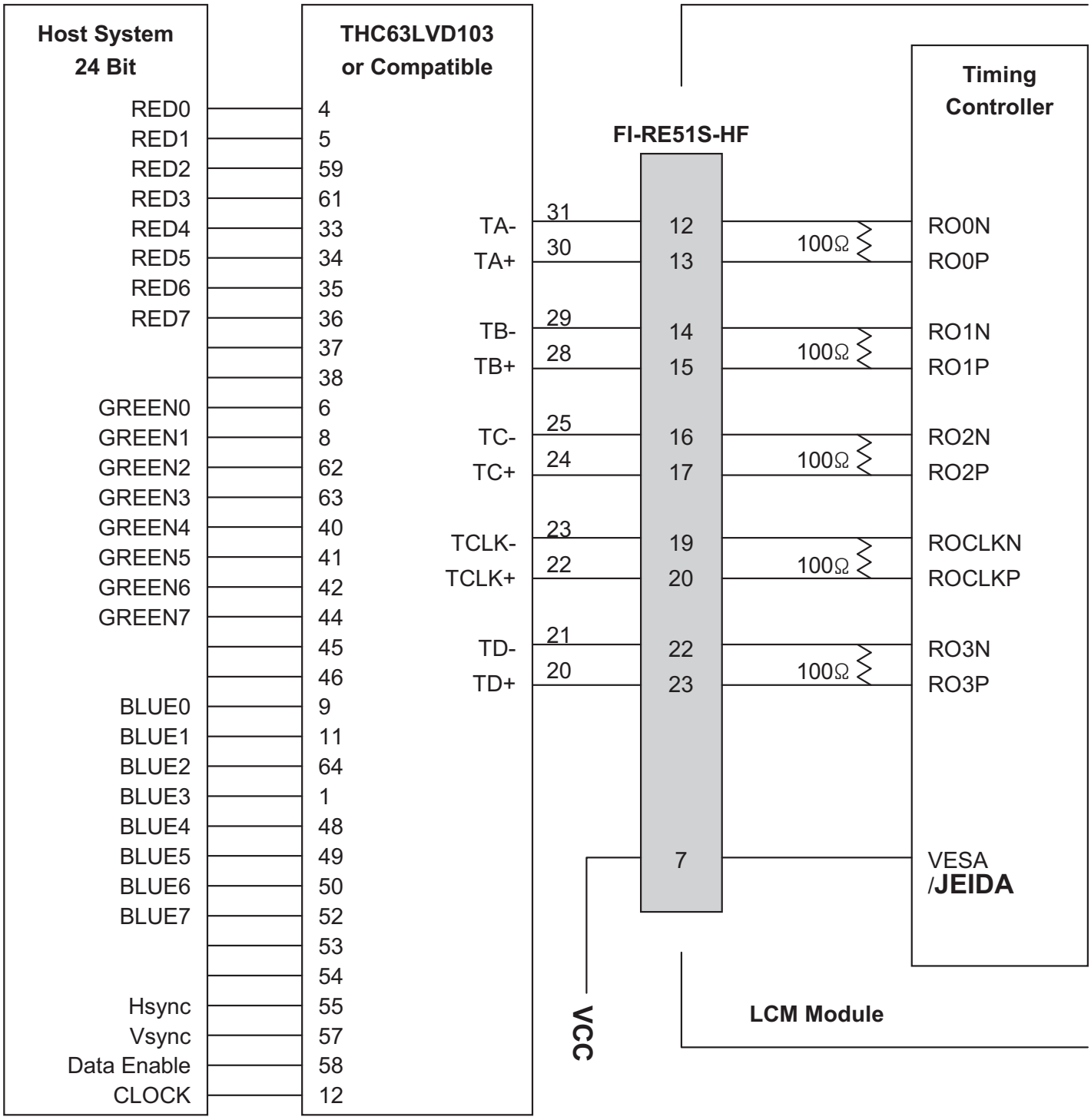
3. '7' means MSB and '0' means LSB at R,G,B pixel data.

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- III-2

■ Required signal assignment for Flat Link (Thine : THC63LVD103) Transmitter(Pin7= **"H"**)



Note :1. The LCD module uses a 100 Ohm[Ω] resistor between positive and negative lines of each receiver input.

2. Refer to LVDS Transmitter Data Sheet for detail descriptions. (THC63LVD103 or Compatible)

3. '7' means MSB and '0' means LSB at R,G,B pixel data.

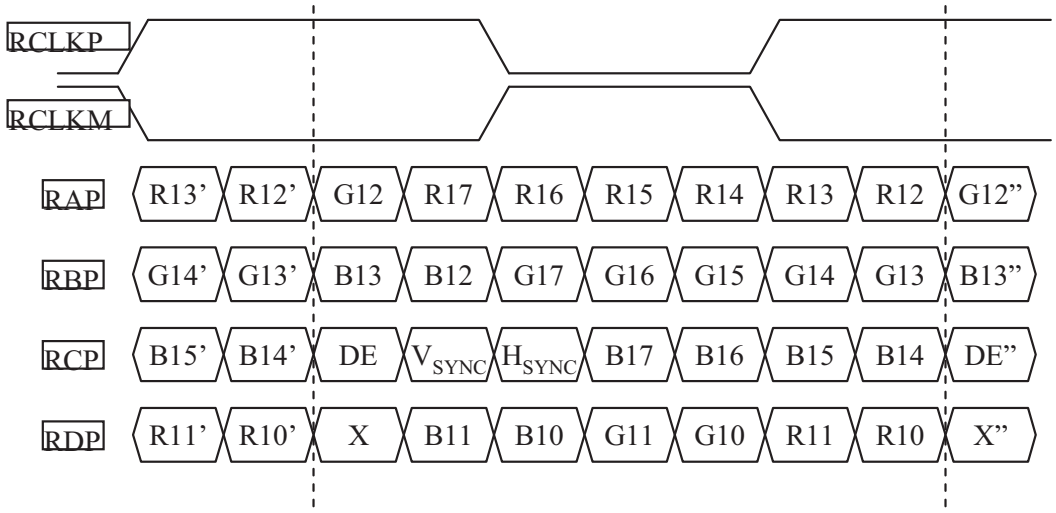
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

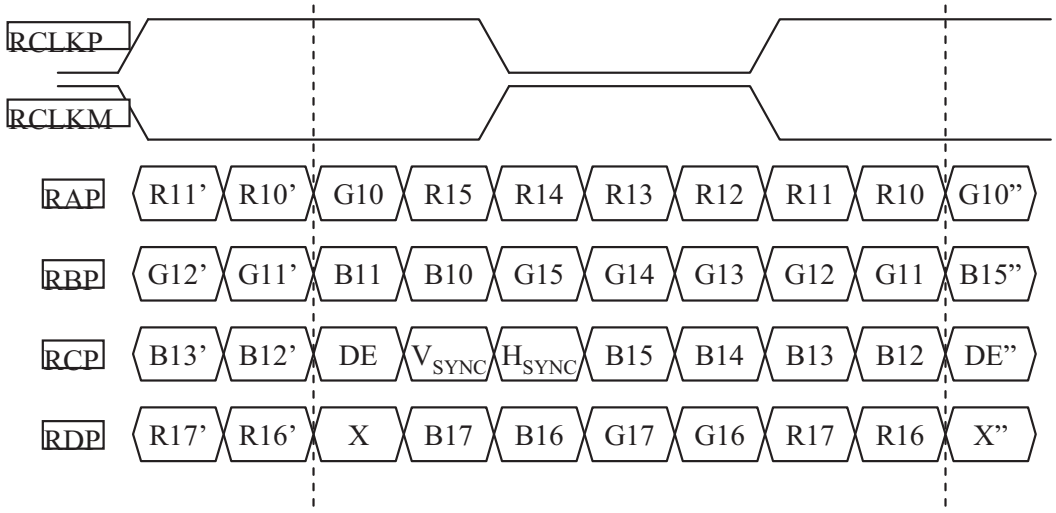
APPENDIX- IV

■ LVDS Data-Mapping Information (**8 Bit**)

1) LVDS Select : "**H**" Data-Mapping (**JEIDA format**)



2) LVDS Select : "**L**" Data-Mapping (**VESA format**)



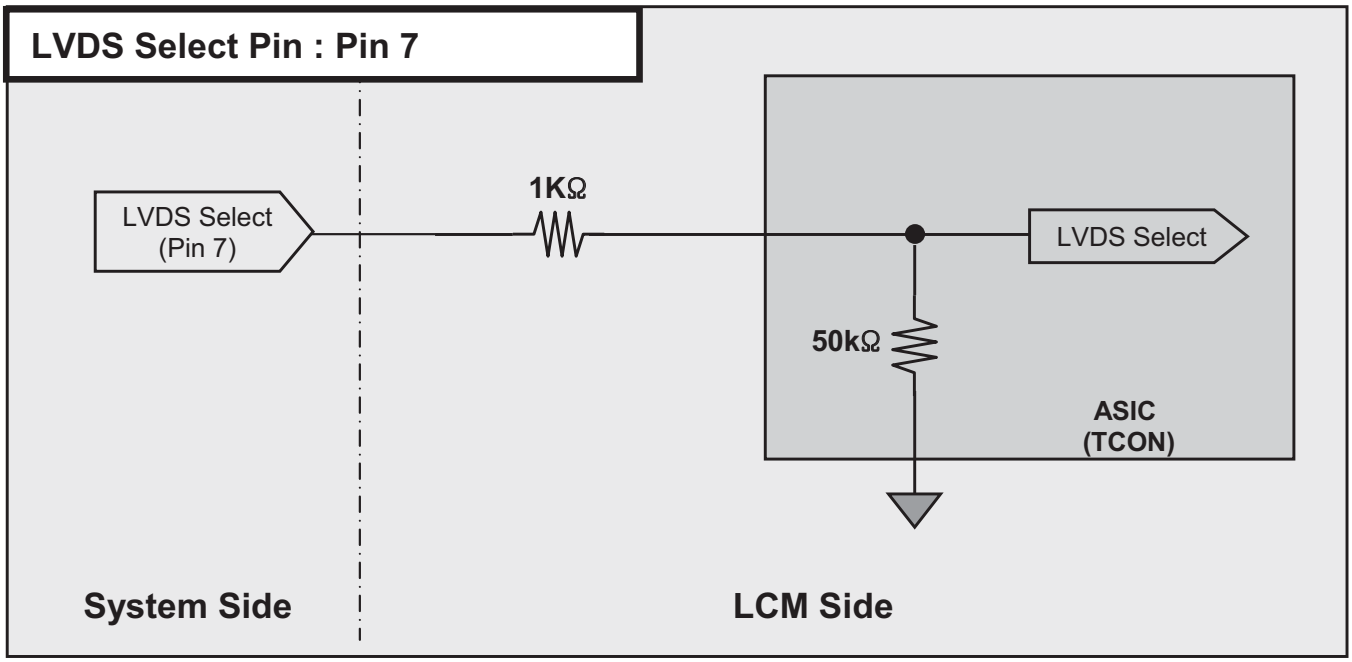
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- V

■ **Option Pin** Circuit Block Diagram

1) Circuit Block Diagram of **LVDS Format** Selection pin



One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- VI

■ Standard specification of Eyeglasses

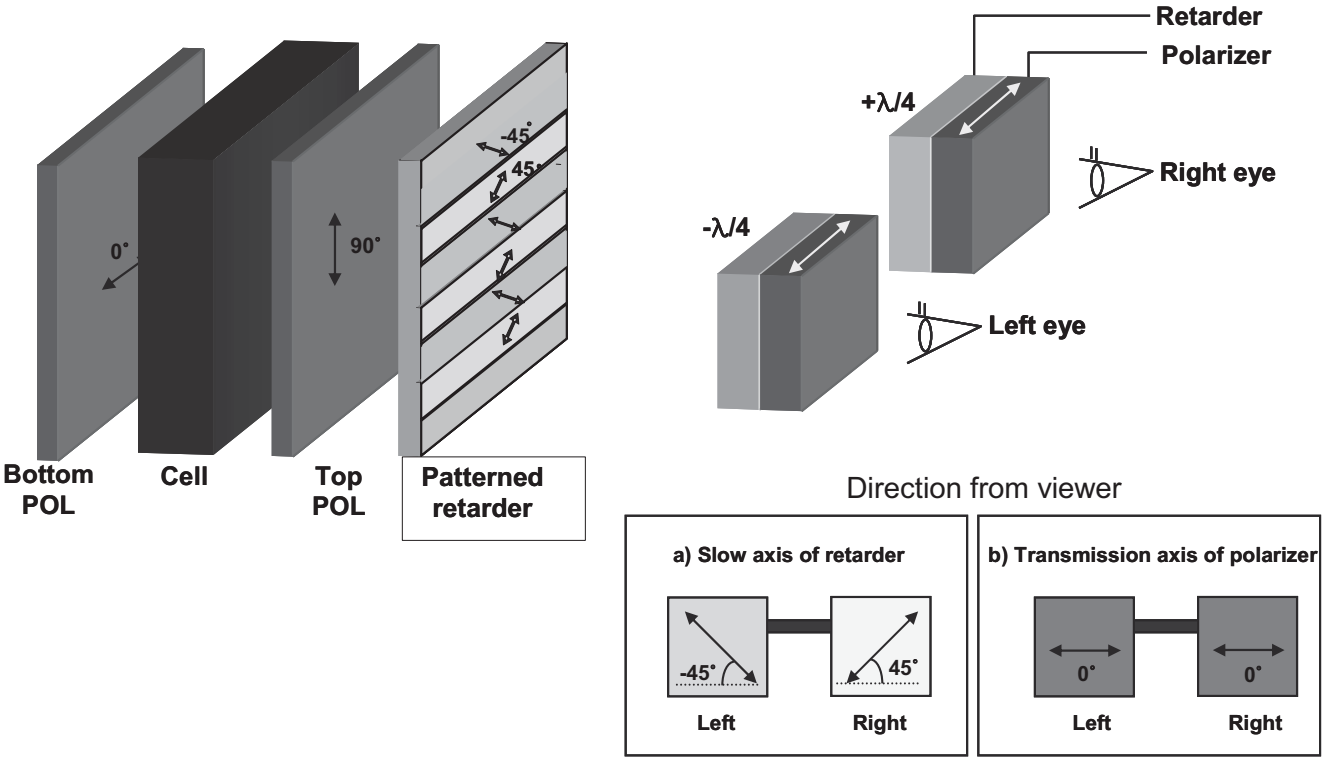
This is recommended data of Eyeglasses for LC470EUE-SEF1 model. (details refer to table)

For each item, depending on the eyeglass manufacturer tolerances may occur, this tolerance can affect 3D performance. (3D Crosstalk, 3D luminance, 3D viewing angle)

<Table. Standard specification of Eyeglasses>

Design item of Eyeglasses		Left	Right	Remark
Optical axis	a) Slow axis of retarder	-45˚	45˚	Refer to drawing
	b) Transmission axis of polarizer	0˚	0˚	
Retardation value	Retarder	125nm		@550nm

※Recommended polarizer
Polarization efficiency: more than 99.90%



(b) Configuration of Eyeglasses

<Drawing. Information of optical axis>

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

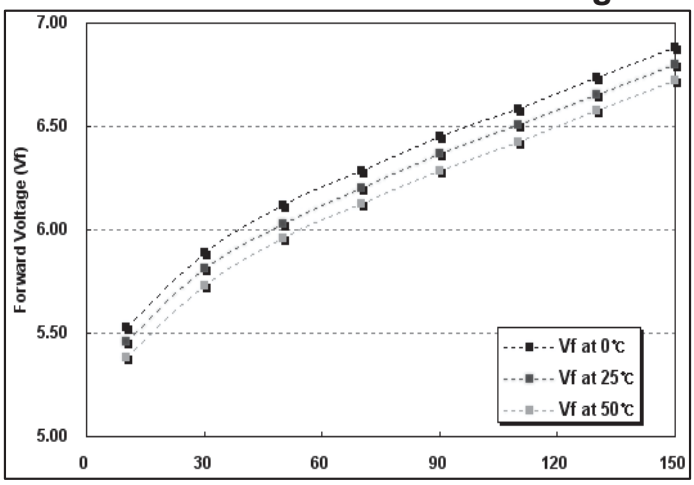
APPENDIX- Ⅶ

■ LED Array Electrical Spec

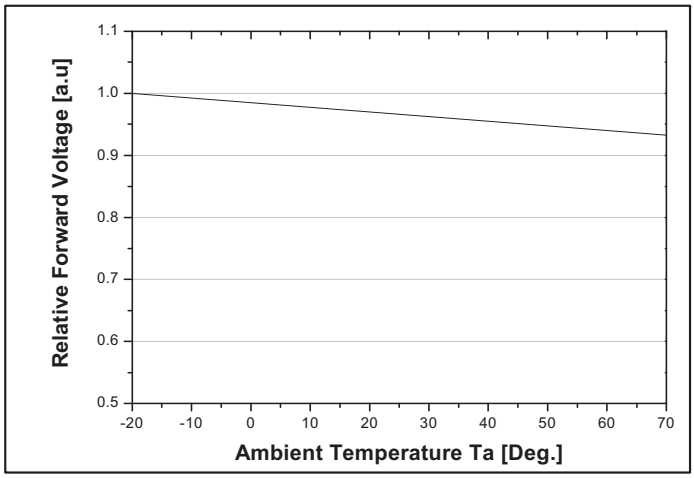
Items	Symbol		Condition	Min.	Typ.	Max.	Unit
Array Operating Voltage	V_F	Ta = 0℃	I_{FM} =630mA	47.9	52.2	56.1	V
		Ta = 25℃	I_{FM} =630mA	47.2	51.5	55.3	
	△ V_{FM}		I_{FM} =630mA	–	–	1.7	V

TBD

■ Forward Current vs. Forward Voltage



■ Ambient Temperature vs. Forward Voltage

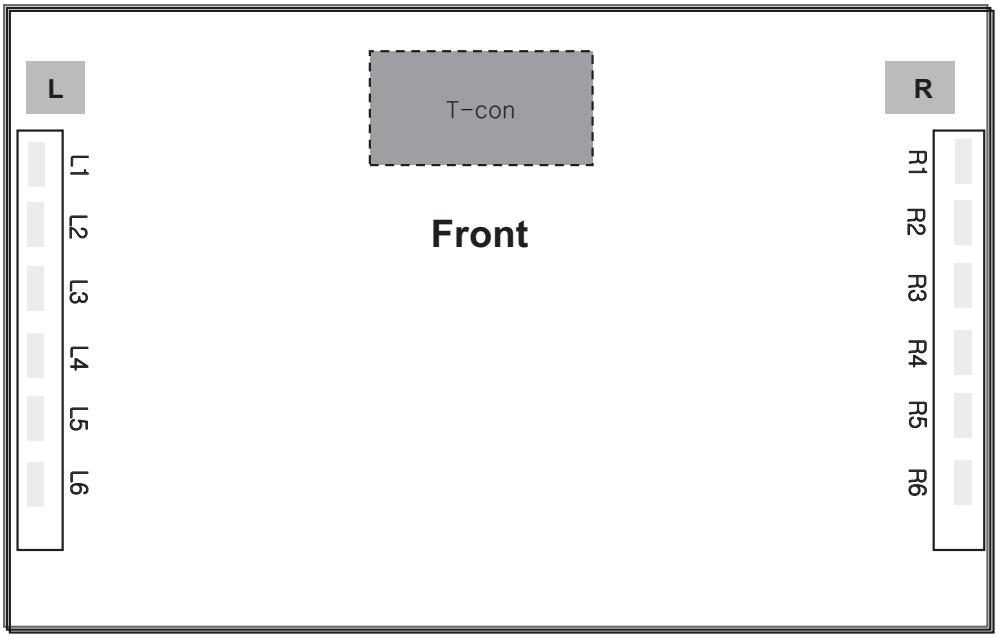


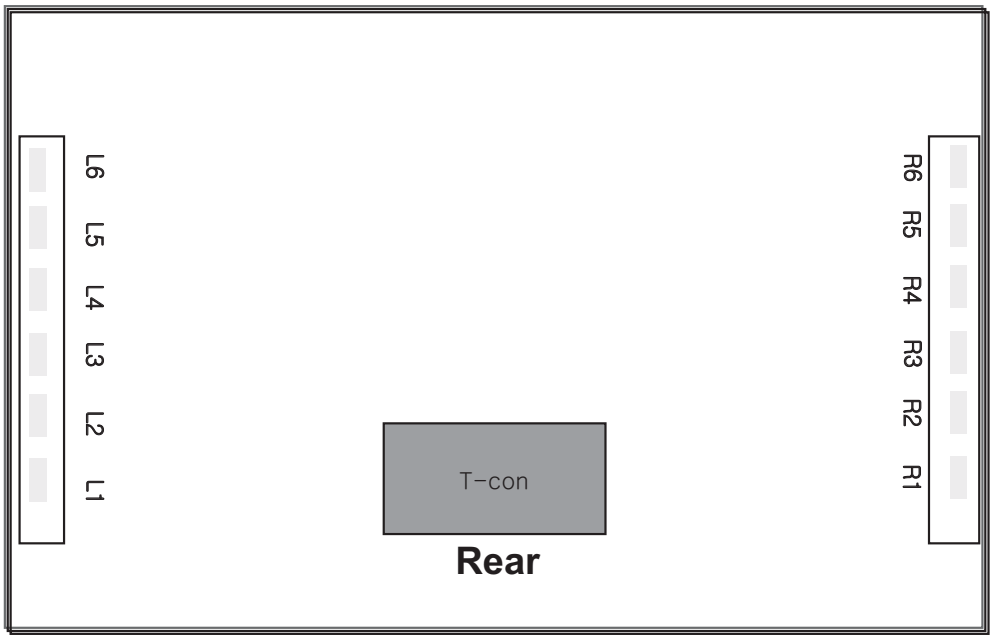
One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com

Global LCD Panel Exchange Center www.panelook.com 屏库:全球液晶屏交易中心

APPENDIX- Ⅷ

■ Local Dimming Block Pin Matching





LED Driver CNT		
Pin No	**CN_201**	**CN_202**
1	L1 Cathode	Anode_R
2	L2 Cathode	N.C
3	L3 Cathode	R6 Cathode
4	L4 Cathode	R5 Cathode
5	L5 Cathode	R4 Cathode
6	L6 Cathode	R3 Cathode
7	N.C	R2 Cathode
8	Anode_L	R1 Cathode

One step solution for LCD / PDP / OLED panel application: Datasheet, inventory and accessory! www.panelook.com